

THE AFRICAN GENUS *TRITONIA* KER-GAWLER: PART 2. SECTIONS *SUBCALLOSAE* AND *MONTBRETIA*

MIRIAM P. DE VOS

(Department of Botany, University of Stellenbosch, Stellenbosch 7600, R.S.A.)

ABSTRACT

The remaining two sections of the genus *Tritonia*, namely *Subcallosae* sect. nov., with five species, and *Montbretia* (DC.) Pax with 14 species, are dealt with, concluding the revision of the genus, with a total of 28 accepted species. These two sections are widespread, mainly in the summer rainfall regions of South Africa, and also in several African countries south of the equator.

Illustrated descriptions of the species, their range and synonymy, as well as keys, are provided. In section *Subcallosae* two new varieties are described and three species are reduced to subspecific rank. Four new species are described in section *Montbretia*, namely *T. delpierrei*, *T. drakensbergensis*, *T. karooica* and *T. marlothii*. A list is given of ca. 50 species excluded from the genus, and a few insufficiently known species are recorded. There is also a note with newly acquired data on *T. tugwelliae* that was treated in Part 1.

UITTREKSEL

Die oorblywende twee seksies van die genus *Tritonia*, naamlik *Subcallosae* sect. nov., met vyf spesies, en *Montbretia* (DC.) Pax met 14 spesies, word behandel, waardeur die hersiening van die genus afgesluit word, met 'n totaal van 28 aanvaarde spesies. Die twee seksies kom wydverspreid voor, hoofsaaklik in die somerreëvalstreke van Suid-Afrika, en ook in sekere Afrikalande suid van die ewenaar.

Geïllustreerde beskrywings van die spesies, hul sinonimie en verspreiding, word gegee en sleutels word verskaf. In seksie *Subcallosae* word twee nuwe variëteite beskryf en drie spesies word tot subspesifiese rang verlaag. Vier nuwe spesies word vir seksie *Montbretia* beskryf, n.l. *T. delpierrei*, *T. drakensbergensis*, *T. karooica* en *T. marlothii*. 'n Lys word gegee van die ongeveer 50 uitgesluite spesies, en enkele onvolledig bekende spesies is omgetel. Daar is ook 'n nota met nuwe fete oor *T. tugwelliae* wat reeds in Deel 1 behandel is.

Key words: *Tritonia* sect. *Subcallosae*, sect. *Montbretia*, Iridaceae, South Africa.

INTRODUCTION

In this article the remaining two sections of the genus *Tritonia*, namely sections *Subcallosae* and *Montbretia* are revised. The species of these two

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sections are widely distributed in the summer rainfall regions of South Africa, as well as in regions which, although often incorporated with the winter rainfall region, may also receive rain in any season of the year (southern Cape Province, Little Karoo and Namaqualand (Figs 15, 16, 21, 22). Unlike sections *Tritonia* and *Pectinatae*, they do not extend into the winter rainfall region proper, i.e., the extreme south western Cape Province. Only two species, namely *T. moggii* and *T. laxifolia*, occur beyond the borders of South Africa, as far north as Zambia and Tanzania. No species of *Tritonia* occurs in West Africa, and the few species north of the equator which were described as *Tritonia*, belong to other genera.

In both sections now under consideration, the length of the perianth tube varies from species to species, being shorter than the segments in a few species, equal to in others, and up to several times the length of the segments in still others. The degree of zygomorphy of the flowers differs in the two sections, as well as the development, size and shape of the outgrowths, known as calli, on the anticus perianth segments.

Section *Subcallosae*, established here, incorporates species which sometimes show small vestigial calli, usually in the form of low ridges, on one or sometimes all three anticus perianth segments. Its species have flowers with slight zygomorphy. The section can be regarded as the most primitive of the genus, forming a link with the other sections.

Section *Montbretia* comprises the most highly developed species of the genus. The flowers show a decided zygomorphy, as in sections *Pectinatae* and *Teretifolia*, and well-developed calli, 1–5 mm high, occur on the three anticus perianth segments, or rarely on the median one only.

Montbretia was established as a genus by A. P. De Candolle (1803) for two species of *Gladiolus* with calli. There was uncertainty about the rank of this taxon from the time that Bentham and Hooker filius (1883) brought it to the synonymy of *Tritonia*. See further under section *Montbretia*.

A revised key to the five sections is again given, to help in distinguishing the sections.

KEY TO THE SECTIONS

1. Flowers almost regular (rarely completely regular – *T. dubia*) with spreading perianth segments; stamens randomly curved (rarely erect), with anthers not contiguous and not all facing the anterior side of the flower:
 2. Perianth tube shorter than or sometimes subequal to the segments; leaves lanceolate, ensiform, flat 1. Sect. **Tritonia**
 2. Perianth tube longer than the segments; leaves linear, striate (when dry) and subterete or compressed cylindrical (fresh) 4. Sect. **Subcallosae**
1. Flowers zygomorphic with the posticus perianth segment usually widest; stamens curved towards the posticus segment with anthers contiguous, facing the anterior side of the flower:
 3. Spike dense, curved slightly at its base to give it an almost pectinate ap-

- pearance; flowers white, cream or pale pink with reddish honey guides in the throat; leaves with crisped-undulate or inrolled margins or with four longitudinal ribs or flanges. 2. Sect. **Pectinatae**
3. Spike lax or sometimes dense, erect or suberect, secund or distichous, not pectinate; flowers red to orange, yellow or sometimes pale, often with yellow in the cup, sometimes with a callus on the lower perianth segments; leaves linear to lanceolate or ensiform, rarely undulate or filiform:
4. Leaves filiform, terete or subterete, wiry, striate when dry 3. Sect. **Teretifoliae**
4. Leaves linear to lanceolate or ensiform, rarely spirally twisted with undulate margins:
5. Perianth with a well-developed callus on the three, or sometimes only the median, anterior segments 5. Sect. **Montbretia**
5. Perianth without calli or with a low ridge on the median or rarely all three anterior segments 4. Sect. **Subcallosae**

KEY TO SECTION *SUBCALLOSAE*

1. Leaf margins straight:
2. Leaves compressed cylindrical to subterete, slightly swollen (fresh), linear and striate (dry); flowers almost regular with long perianth tube; stamens almost central with anthers facing outwards 10. **T. bakeri**
2. Leaves linear-lanceolate to linear, thin and flat, with a prominent middle vein and sometimes a prominent vein near each margin; flowers zygomorphic with long or short perianth tube; stamens curved towards the posterior side of the flower, with anthers unilateral, facing the anterior side:
3. Perianth tube at least 1,5 times the length of the segments; leaves without a prominent vein near the margins:
4. Outer bract, of the lower flowers especially, acuminate or rarely with three acuminate tips close together 12. **T. flabellifolia**
4. Outer bract 3- or sometimes 2-toothed or irregularly toothed. 11. **T. pallida**
3. Perianth tube subequal to, or slightly longer or shorter than the segments; leaves with a prominent vein near each margin:
5. Flowers cream, straw-coloured or pale yellow, usually with dark veining, sometimes with apricot or orangy tints towards the perianth tips or outside; flowering period August to November (to December) 13. **T. lineata**
5. Flowers red, orange-red or pink, rarely with dark veining; flowering period (December to) January to April 14. **T. disticha**
1. Leaf margins undulate **T. undulata**
(see under SPECIES INSUFFICIENTLY KNOWN)

KEY TO SECTION *MONTBRETIA*

1. Leaves with undulate margins, sometimes spirally twisted ... 20. **T. watermeyeri**
1. Leaves with straight margins, not spirally twisted:
2. Perianth tube (1,5-)2-3(-4) times the length of the segments:
3. Flowers somewhat salver-shaped at noon, with almost equal perianth segments; leaves slightly succulent; Richtersveld, Namaqualand:
4. Style 18-25 mm long; perianth tube 1,5-2 times the length of the segments 25. **T. delpierrei**
4. Style 32-40 mm long; perianth tube 3-4 times the length of the segments 26. **T. marlothii**

3. Flowers somewhat 2-lipped or funnel-shaped, with the posticous perianth segment often widest; leaves not succulent; southern and eastern Cape Province, Karoo and Mozambique:
 5. Perianth red, orange-red or pink:
 6. Perianth tube less than 20 mm long, 1.5 to almost 2 times the length of the segments; perianth dark red, drying to a blackish purple-red; eastern Cape Province 23. *T. atrorubens*
 6. Perianth tube more than 20 mm long, about twice the length of the segments; perianth salmon-pink or orange-pink; Mozambique 24. *T. moggii*
 5. Perianth bright yellow or brownish-yellow, sometimes apricot or "cream and orange":
 7. Leaves suberect or sometimes spreading; perianth bright yellow, somewhat 2-lipped; posticous segment erect (porrect) and other segments spreading; southern and south eastern Cape 16. *T. chrysanthia*
 7. Leaves usually strongly reflexed; perianth brownish-yellow, apricot or "cream and yellow", with dark veins, funnel-shaped, segments often reflexed; Great Karoo 27. *T. karooica*
2. Perianth tube nearly equal to or (slightly) shorter than the segments:
 8. Scape not extending above leaf bases; inflorescence with 2-4 flowers each terminal on a short stalk hidden by leaf bases; leaves reflexed 28. *T. florentiae*
 8. Scape extended, usually longer than leaves; inflorescence a simple or branched spike with several flowers; leaves suberect or spreading:
 9. Leaves linear, (0.5-)2-4(-6) mm wide:
 10. Plants not more than 300 mm long; leaves somewhat flaccid; southern Cape 17. *T. parvula*
 10. Plants (250-)300-900 mm long; leaves firm; northern Cape and Transvaal:
 11. Perianth tube 8-10 mm long, about half the length of the segments; leaves with a prominent vein near each margin; north eastern Cape 21. *T. drakensbergensis*
 11. Perianth tube (10-)14-18 mm long, subequal to or slightly longer or rarely shorter than the segments; leaves striate when dry; Transvaal 22. *T. nelsonii*
 9. Leaves lanceolate, ensiform or linear-lanceolate, with widest leaves usually more than 5 mm in width (except *T. strictifolia*):
 12. Flowering period spring or early summer; capsules 7-10 mm long:
 13. Leaves usually erect, (40-)60-90×2-5 mm, with a prominent vein near each margin; callus on the anticus perianth segments high and narrow 18. *T. strictifolia*
 13. Leaves suberect or spreading, longer than 100 mm, usually wider than 5 mm, usually without a prominent vein near the margins, calli disc-shaped (as high as long), rarely high and narrow 15. *T. securigera*
 12. Flowering period autumn, sometimes late summer or early winter; capsules 10-15 mm long, erect, pressed against the rachis 19. *T. laxifolia*

4. Section SUBCALLOSAE DeVos, sect. nov.

Folia lanceolata vel linearia, interdum subteretia, subsucculenta, interdum nervo prominenti prope margines. *Flores* zygomorphi vel interdum fere regulares, plerumque infundibulares, rubri vel miniati vel flavi vel albi, tubo perianthii infundibulari vel pro parte majore tubiformi, parum brevior vel ad 2–3-plo longior segmentis; saepe segmento antico medio vel interdum omnibus tribus segmentis anticis callo vestigiali vel crista humili praeditis. *Stylus* et *stamina* segmentum posticum versus curvata vel interdum fere ad centrum posita.

Type species: Tritonia lineata (Salisb.) Ker-Gawl.

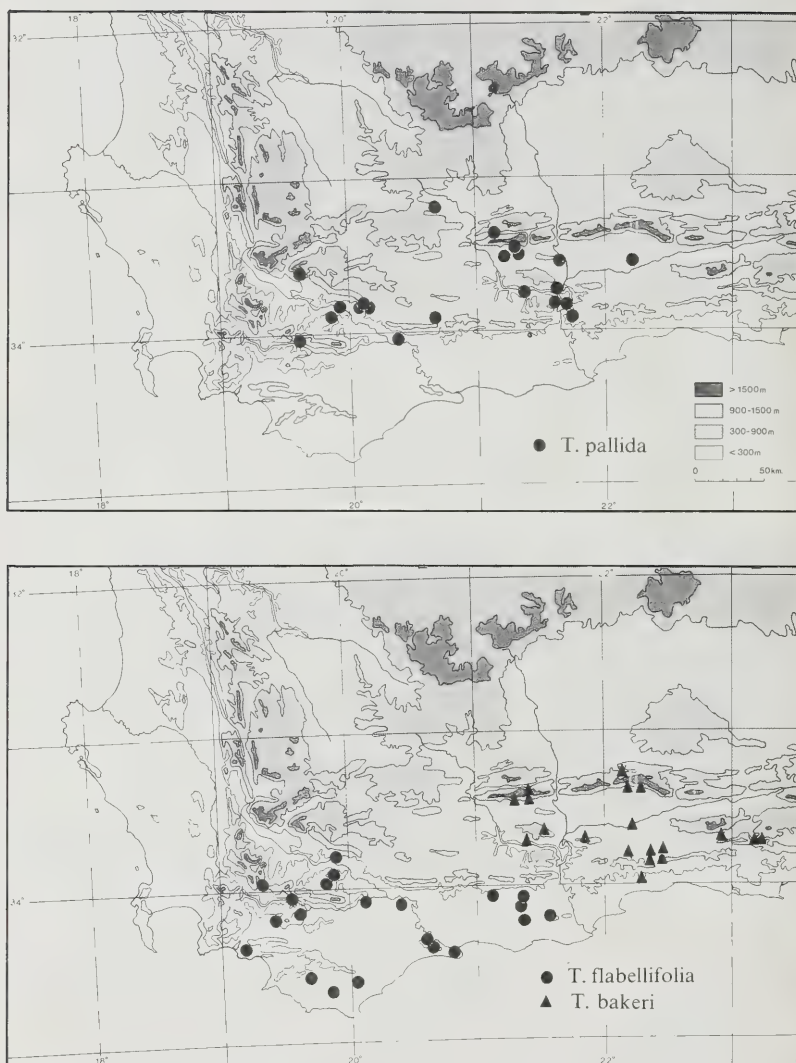
Leaves lanceolate to linear, sometimes subterete and slightly succulent, sometimes with a prominent vein near the margins. *Flowers* zygomorphic or sometimes almost regular, usually funnel-shaped, red, orange-red, pink, yellow or white. *Perianth tube* funnel-shaped or for the greater part tubular, slightly shorter to 2–3 times longer than the segments; *segments* subequal, oblong to obovate-ob lanceolate, usually spreading, often with a vestigial callosity or low ridge on the median anticallosity, or sometimes on all three anticallosities. *Style* and *stamens* curved towards the posticallosity segment or sometimes almost central. *Antthers* facing the anterior side of the flower or sometimes outwards.

Distribution: Widely distributed in southern districts of the Cape Province from Caledon to George and in the Little Karoo and Langkloof; also in the eastern parts of South Africa from Port Elizabeth, throughout the Transkei and Natal to the south eastern border of Transvaal and north eastern Orange Free State, as well as in Lesotho and Swaziland; not extending into the Great Karoo or the south western corner and western part of the Cape Province (Figs 15, 16).

Three species, namely *T. bakeri*, *T. pallida* and *T. flabellifolia*, mainly from the southern Cape Province, are winter rainfall species, sprouting in autumn and flowering in spring and early summer. *T. lineata* is widely distributed in the eastern summer rainfall regions of South Africa and also occurs within the eastern limits of the winter rainfall region. It, too, has the winter rainfall habit of sprouting in autumn and flowering in spring and early summer. The closely related *T. disticha* which is more or less sympatric with *T. lineata*, flowers in summer.

The species *T. undulata* is known only from its type specimen in Burman's collection in Geneva, with a locality indicated merely as Caput bonae Spei. It perhaps fits best in this section. See under SPECIES INSUFFICIENTLY KNOWN.

In three species, namely *T. pallida*, *T. lineata* and *T. disticha*, a small



G.P.S. (L)

FIG. 15

Geographical distribution of *Tritonia*, section *Subcallosae*: *T. pallida*, *T. flabellifolia*, *T. bakeri*.

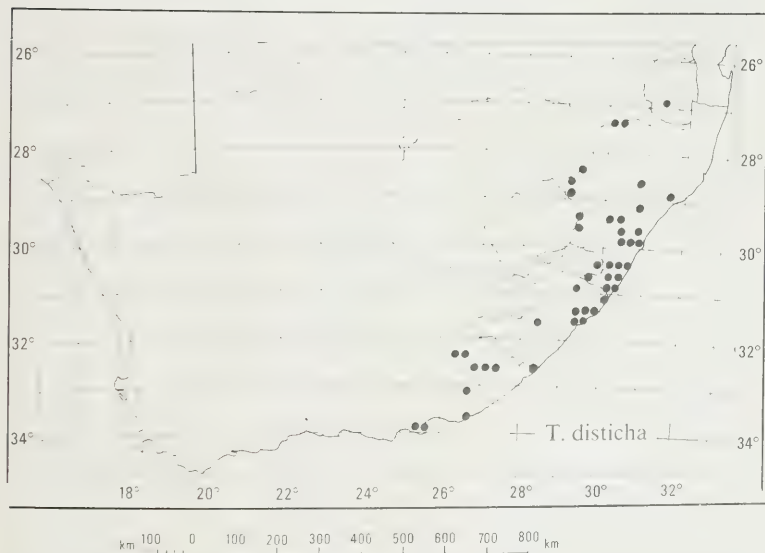
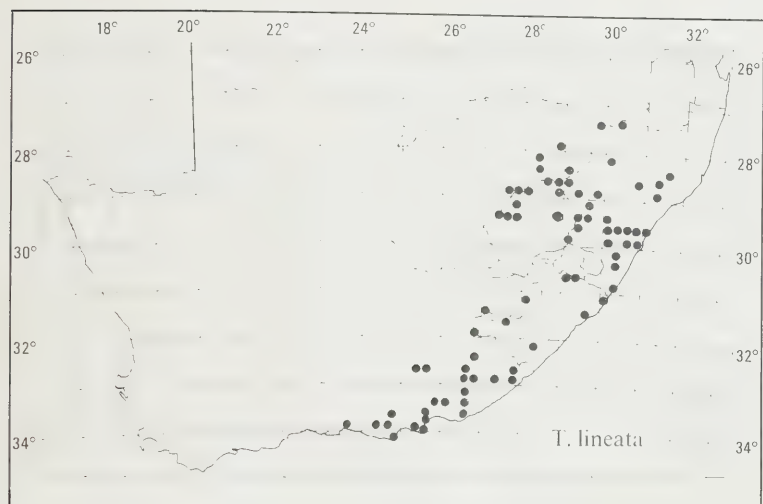


FIG. 16

Geographical distribution of *Tritonia*, section *Subcallosae*: *T. lineata*, *T. disticha*.

vestigial callus, usually in the form of a low ridge, is often present on the median, or sometimes all three, anticus perianth segments. The perianth tube is short in the two eastern species and long in the southern Cape species.

The section seems to form a link with the other sections of the genus and its two eastern, widely distributed species may possibly be considered the most primitive species of the genus. The perianth is not as strongly zygomorphic as in sections *Montbretia*, *Pectinatae* or *Teretifolia*.

The section comprises six out of the 20 species of Baker's subgenus *Tritonia Proper* (1896). Ten of this score of species, however, do not belong to *Tritonia*, and the remaining four species in the subgenus have now been removed to three other sections of *Tritonia*.

Leaf anatomy. Some interesting anatomical features are shown within this section. In *T. bakeri* the long, narrow leaves are compressed cylindrical or subterete, storing a small amount of water. The epidermis of the leaf margins is not palisade-like and thickened as in most species of *Tritonia* (De Vos, 1982a). In *T. lineata* and *T. disticha* the leaves have, in addition to their prominent middle vein, a strong vein near each margin, and the epidermis contains large amounts of tanniferous material often causing the leaves to become dark brown on drying out. The strong submarginal veins remain pale and are especially prominent in the dry state.

10. ***Tritonia bakeri*** Klatt in Abh. naturf. Ges. Halle **15**: 358 (1882), non Klatt 1895.

Plants (270–)400–700(–800) mm long. *Corm* depressed globose, 15–30 mm diam., tunic fibres fine, irregularly reticulate, subparallel in the lower part. *Scape* simple or branched, suberect or slightly flexuose, (200–)400–700(–800) mm long, with a collar of old leaf bases around its base. *Leaves* 4–7 or more, compressed cylindrical or subterete, water storing, rigid, acute or acuminate, erect or suberect, (150–)200–300(–600) × 1–2(–3) mm, striate when dry, sometimes as long as the scape; cauline leaves 1–2, subulate, to 150 mm long. *Spike* 1–2(–3)-branched, distichous, lax, with (3–)6–10 flowers. *Bracts* membranous, papery, with brown and sphacelate upper part, (6–)10–15(–18) mm long; *outer* 2–3-toothed, or irregularly toothed or obtuse, the median tooth sometimes reduced, veined; *inner* bidentate or bifid with acuminate teeth, 2-veined, with papery margins. *Flowers* almost regular, often somewhat salver-shaped, suberect.

FIG. 17

Tritonia bakeri subsp. *bakeri*: a, plant and front and side view of flowers; b, outer (left and lower) and inner (right) bract; c, flower half in a median cut. (De Vos 2413, 2414).



(35-)50-75(-90) mm long, cream, creamy-yellow, or mauvish-pink, the three outer segments with dark veins outside. *Perianth tube* (20-)30-45(-55) mm long, tubular but widening in the upper quarter to 7 mm diam., almost straight; *segments* oblanceolate-oblong or oblanceolate-obovate, obtuse to subobtuse, spreading, subequal in length, (15-)20-25(-30) $\times$ (5-)7-10 mm, with the posticous segment 8-14 mm wide. *Stamens* erect, almost in the centre of the flower; *filaments* (8-)15-20(-25) mm long, erect; *anthers* 5-10 mm long, straight or curved, facing outwards, violet, reaching halfway or almost to the tips of the perianth segments; pollen violet or pale. *Style* (27-)35-60(-80) mm, erect; *stigmatic branches* 3-5 mm long, reaching or overtopping the anthers. *Capsules* obovoid, 12 mm long; *seeds* black, 2 mm diam. *Chromosome number* $2n = 22$.

Flowering period: October to early December.

Distribution: chiefly in the Little Karoo and Langkloof, also in the Cape south coastal districts from George to Riversdale (Fig. 15).

This species is distinguished by its narrow compressed-cylindrical or subterete leaves which store some water and become striate when dried out, and by its lax, distichous spike with almost regular, long-tubed, pale flowers. Morphologically it stands nearest *T. pallida* from which it differs in its narrower leaves, nearly regular flowers with the stamens and style placed almost symmetrically in the centre of the flower, and in its perianth without calli. Its distribution overlaps that of *T. pallida* in the Ladismith district. From *T. cooperi*, which also has narrow leaves, it differs in its lax distichous spike with its almost regular flowers and in its leaves which are not X-shaped or H-shaped in transverse section.

The younger Linnaeus's brief description of *Gladiolus longiflorus* (1781), based on a Thunberg specimen, seems to match *T. bakeri*. There are no Thunberg specimens so named in the Linnaean herbarium (LINN), but only specimens of Sparmann which are, however, *Acidanthera* (N. E. Brown, 1928). One of Thunberg's two sheets in UPS, named *G. longiflorus* α and β respectively (nos 1040 and 1041) must therefore be regarded as the type. They are, however, two species, α being *T. bakeri* and β *T. cooperi*. Linnaeus's diagnosis is so short that it fits both α and β equally well. Three years later Thunberg gave a more detailed description of *G. longiflorus* in *Dissertatio de Gladiolo* (1784), which fits his specimen no. 1041, i.e. *T. cooperi*, best. This then was chosen as lectotype of *G. longiflorus* (De Vos, 1982b).

Specimens collected by Oldenburg and Masson at the Cape were named *G. striatus* by Solander, a manuscript name which Baker (1876) published as *Montbretia striata*. When Klatt (1882) transferred this species to *Tritonia*, he could not use the combination *T. striata* for it, as this was a later homonym

of *T. striata* (Jacq.) Ker-Gawler (1805) (which is *Babiana striata*). He therefore renamed the species *T. bakeri*. But in 1895 he used the name *T. striata* for it, and identified the central African species which Baker (1875) had described as *Montbretia laxifolia* Klatt, as *T. bakeri*. Klatt's *T. bakeri* of 1882 and 1895 are therefore two different species.

The type of *T. bakeri* at BM (sub *Montbretia striata*) comprises three plants with flowers which are rather small compared with numerous later collections of the species, and which resemble the type of *T. lilacina* to some extent. The latter differs in its pale mauvish-pink perianth and in the slightly smaller size of the floral organs. In some herbaria specimens of *T. bakeri* were identified as *T. lilacina*. The two species are so closely related that they are now regarded as conspecific, and *T. lilacina* is transferred to *T. bakeri* as subspecies *lilacina*.

KEY TO THE SUBSPECIES

Flowers (50–)65–80(–90) mm long, cream or creamy-yellow a. subsp. **bakeri**
 Flowers 35–50 mm long, pale mauvish-pink or sometimes cream . . . b. subsp. **lilacina**

a. subspecies **bakeri**

Tritonia bakeri Klatt in Abh. naturf. Ges. Halle **15**: 358 (1882), non Klatt 1895; Bak. Handb. Irid. 193 (1892) & in Fl. Cap. **6**: 123 (1896) in part, excl. *Zeyher 4017*; N.E.Br. in J. Linn. Soc. **48**: 25 (1928). Type: Promont. b. Spei, Oldenburg & Masson (BM, holo-) – “Promont. b. Spei” probably refers to the Cape in general.

Gladiolus striatus Soland. ined. in Hb. Banks; non Jacq. (1789).

Montbretia striata Soland. ex. Bak. in J. Bot. Lond. **14**: 337 (1876) & in J. Linn. Soc. **16**: 168 (1877). Type as for *T. bakeri*.

Tritonia striata (Bak.) Klatt in Dur. & Schinz, Consp. Fl. Cap. **5**: 208 (1895) in part, excl. syn. *T. capensis* & *Gladiolus roseus*; hom. illeg., non Ker-Gawler (1805) (= *Babiana striata* (Jacq.) G. J. Lewis).

Gladiolus longiflorus L.f. Suppl.Pl. 96 (1781) in part, excl. lectotype (= *T. cooperi*); Thunb. Diss. Gladiolo **19** (1784) & Prodr. Cap. **8** (1794) in part, excl. syn. Berg. & Delar. & Thunberg Herb. spec. β ; non Jacq. (1789) nec Vahl (1805).

Tritonia longiflora (L.f.) sensu N.E. Br. in J. Linn. Soc. **48**: 25 (1928) in part, excl. Hb. Thunberg spec. β ; non Ker-Gawl. (1805) nec Ait. (1810).

T. longituba R. C. Foster in Contr. Gray Herb. N. S. **114**: 45 (1936) in part, excl. Hb. Thunb. spec. β .

Fig. 17.

Flowers (50–)65–80(–90) mm long, cream or creamy-yellow. Perianth tube (30–)40–45(–55) mm long, ca. (1.5–)2 times the length of the segments;

segments 18–25(–30) mm long, 7–10 mm wide, with the posticous segment up to 12 mm wide. *Style* (40–)50–65(–70) mm long.

CAPE—3321 (Ladismith): Seweweekspoort (-AD), *Wall s.n.*, 14/11/38 (S), *Wurts 1221* (NBG); Elandsberg, *Wurts 1190* (NBG); Southern side of Seweweekspoort, *Delpierre s.n.* sub *De Vos 2436* (STE); Outside Waterkloof, Ladismith (-CB), *Gillett 1913* (BOL, STE), *De Vos 2413* (STE); Hoekoe, *De Vos 2414* (STE); Poort, *Taylor 8978* (STE); Vanwyksdorp, *Compton 3878* (BOL), *Archer 686* (BOL); 2 mls ENE of Vanwyksdorp, *Acocks 20784* (PRE); Rooiberg Pass, ridge W of summit (-DA), *Oliver 5291* (PRE, STE), *Wurts 1653* (NBG); Rooiberg, Nicolaaskloof, *Thompson 3349* (STE).

—3322 (Oudtshoorn): Cango Caves (-AC), *Oliver* NBG 63028; N side of Outeniquas nr Moerasrivier (-CC), *Esterhuysen 19488* (BOL); Zebra (-CD), *Esterhuysen 19357* (BOL); Outeniqua Pass, *Loubser 2078* (NBG); Camfer, *Esterhuysen 7106* (BOL); 4,2 miles WNW of Camfer station, *Acocks 23071* (PRE); Laudina (-DB), *Esterhuysen 6365* (BOL);

—3323 (Willowmore): Hills nr Avontuur (-CA), *Fourcade 3166* (BOL, PRE, STE, MO), *Marloth 10937* (PRE); Uniondale poort, *Acocks 19975* (PRE); Foothills of Kammanassie Mts nr Avontuur, *Esterhuysen 16479* (BOL); Prope Avontuur, *Bolus 2483* (K); Hills S of Haarlem (-CB), *Fourcade 3496* (STE); Misgund hills (-CD), *Esterhuysen 6951* (BOL), *Fourcade 5477* (STE).

—3419 (Caledon): Zwellendam am Berge bei Puspasvalei (-BA), *Ecklon & Zeyher Irid 96* (MO, not G).

—4322 (Mossel Bay)—3322 (Oudtshoorn): Mossel Bay to George, *Barker 7722* (NBG).

Without precise locality: *Drège 8409* (G, L, K); *Burman* (G); *Thunberg 1040* (UPS) sub *Gladiolus longiflorus*.

b. subspecies ***lilacina*** (L.Bol.) De Vos, stat. nov.

T. lilacina L. Bol. in Ann. Bol. Herb. 2: 161 (1918). Type: Cape, exhibited at the Cape Town wild flower show among plants sent from Riversdale, BOL 13755 (BOL, holo.-).

Icon: Coloured drawing by M. Page in BOL.

Flowers 35–50 mm long, pale mauvish-pink with fine purplish veins outside on outer segments, or sometimes cream. *Perianth tube* 20–30 mm long, ca. 1,5 times the length of the segments; *segments* 15–22 × 5–8 mm, with the posticous segment up to 10 mm wide. *Style* 27–35(–40) mm long.

CAPE—3322 (Oudtshoorn): Swartberg Pass (-AC), *Wall s.n.*, 13/11/38 (S); Cango valley mts (-AD), *Marloth 7554* (PRE); Grootkruis, *Thorns* NBG 63029; Oudtshoorn (-CA), *Yeoman* NBG 1717/25 (BOL, NBG), *Deas* SAM 11640, *Jenner 252* (BOL).

Without precise locality: Sent to Cape Town wild flower show, Oct. 1914, 1916; probably ex Oudtshoorn, BOL 13370, BOL 14683 (SAM); ex Riversdale, BOL 13755.

11. *Tritonia pallida* Ker-Gawl. in Curtis's bot. Mag. sub t. 1275 (1810).

Plants (150-)200-400(-600) mm long. *Corm* ovoid, 10-20 mm diam., tunic fibres fine, reticulate. *Scape* (150-)200-400(-600) mm long, often somewhat flexuose or curved, often with one or several branches. *Leaves* ca. 5-6, linear-lanceolate, curved or suberect, acute or acuminate, (100-)150-300(-500) × 8-15(-25) mm, with a slender middle vein, reaching to the base of the spike; cauline leaves 2-3, subulate, 15-30(-50) mm long. *Spike* distichous, simple or with 1 or more branches, rather lax, with 4-8 or more flowers. *Bracts* membranous, ovate or ovate-lanceolate, straw-coloured, (7-)12-20 mm long; *outer* minutely 3-toothed or sometimes 2-toothed or irregularly toothed, veined, finely sphacelate upwards; *inner* bidentate or shortly bifid, with wide papery margins, 2-veined, sometimes slightly shorter than the outer. *Flowers* zygomorphic, (40-)55-80(-100) mm long, suberect, white or cream or sometimes pale lilac, greenish-yellow in the throat, with purple veins on the tube. *Perianth tube* (25-)35-65(-75) mm long, tubular, slightly curved, widened in the upper quarter to 5-8 mm diam., often slightly pouched on the anticous side; *segments* unequal, obtuse, (8-)10-17(-20) mm long, median posticous segment erect, obovate or suborbicular, (7-)10-13 mm wide, lateral posticous segments spreading, oblong, 4-8 mm wide, anticous segments spreading, oblanceolate-obovate or oblong, 4-6 mm wide, often with a long, low yellow-green excrescence (callus) in the throat. *Stamens* curved against the posticous segment; *filaments* (7-)10-15 mm long, white; *anthers* 5-8 mm long, sometimes with curved tips, mauve to purple, reaching halfway up the perianth segments, pollen purple. *Style* (32-)50-75(-85) mm long; *stigmatic branches* 2-4 mm long, reaching the anther tips or higher. *Capsules* 12-20 mm long, ellipsoid; *seeds* brown, shiny with a reticulate-foveate testa. *Chromosome number* $2n = 22$.

Flowering period: September to November.

Distribution: Little Karoo from Montagu to Ladismith, and coastal districts from Caledon to Riversdale (Fig. 15).

This species is distinguished by its pale long-tubed flowers, often with a low, greenish-yellow callus on the median or on all three anticous perianth segments, and by linear-lanceolate, often somewhat spreading leaves. The typical subspecies can easily be confused with *T. flabellifolia* which has almost similar flowers and habit. *T. pallida* differs in its shorter outer bracts which are three-toothed or irregular at the top; the perianth usually has small calli and the leaves are generally wider and, when dry, not as brown as in *T. flabellifolia*.

The small median excrescences (calli) in the throat on the anticous segments vary in number, size and shape, from a low median ridge on each an-



ticous segment to a semi-orbicular (fide L. Bolus, 1926) callus on the median segment and a low callus (or none) on the two lateral anticous segments. These calli are not obvious in dried material.

Jacquin (1789) figured two long-tubed Iridaceous species as *Gladiolus longiflorus* (Ic. t. 262 and 263), erroneously identifying them with *G. longiflorus* L.f. and *G. longiflorus* Thunb., t. 262 being the present species and t. 263 *Ixia paniculata*. Willdenow (1797) transferred both to *Ixia* as *I. longiflora*, citing Jacquin's t. 262 under his var. α which further comprised several other species. Vahl (1805) also united the two taxa, citing Jacquin's t. 262 as his var. β of *Gladiolus longiflorus*.

Ker-Gawler (1810), on transferring Jacquin's *G. longiflorus* (Ic. t. 262) to *Tritonia*, could not use the combination *T. longiflora* for this species, as he had already incorrectly used the name in 1805 for *Ixia paniculata*. He therefore named it *T. pallida*, citing Jacquin, as well as Willdenow's var. α and Vahl's var. β . Baker, in his treatment of *T. pallida* (1877, under *Montbretia*; 1892, 1896) correctly excluded *G. longiflorus* L.f. from the citations as he realised that Jacquin's and the younger Linnaeus's *G. longiflorus* were not the same species.

KEY TO THE SUBSPECIES

- Flowers longer than 55 mm, with the perianth tube three to four times as long as the segments a. subsp. **pallida**
 Flowers shorter than 50(–55) mm, the perianth tube ca. twice (or less) as long as the segments b. subsp. **taylorae**

a. subspecies **pallida**

Tritonia pallida Ker-Gawl. in Curtis's bot. Mag. sub t. 1275 (1810); Bak. Handb. Irid. 192 (1892) & in Fl. Cap. 6: 122 (1896); Klatt in Abh. naturf. Ges. Halle 15: 358 (1882) & in Dur. & Schinz, Consp. Fl. Afr. 5: 206 (1895). Iconotype: Prom. b. Spei. Jacquin Ic. t. 262 (1789) sub *Gladiolus longiflorus* (lecto-).

Montbretia pallida (Ker-Gawl.) Bak. in J. Linn. Soc. 16: 168 (1877).

Gladiolus longiflorus L.f. sensu Jacq. Ic. t. 262 (1789) & Coll. 5: 23 (1796), excl. syn.; non L.f., nec. Thunb.

G. longiflorus var. β Vahl, Enum 2: 111 (1805).

Icones: Jacq. Ic. t. 262; Lewis, ined., in BOL; this work Fig. 18.

FIG. 18

Tritonia pallida: a. plant and front view of flower; b. outer (left) and inner (right) bract; c. flower half in a median cut; d. capsules; ca. low ridge-like callus. (De Vos 2412, Loubser 2254).

Bracts (8-)12-20 mm long. *Flowers* (55-)70-90(-100) mm long, white or cream, slightly greenish-yellow in the throat. *Perianth tube* (45-)55-65(-75) mm long, 3-4 times longer than the segments; *segments* sometimes with a small callus on one, or all three, anticous segments. *Filaments* (10)13-15 mm; *anthers* 7-8 mm, purple. *Style* (55-)60-75(-85) mm long.

CAPE—3319 (Worcester): Prope Robertson (-DD), *Marloth 8001* (PRE).

—3320 (Montagu): Montagu Division, *Compton 3887* (BOL, NBG, PRE); Laingsburg, Whitehill (-BA), *Barker 4881* (NBG); Montagu (-CC), *Taylor 4034* (NBG), *Archer 536* (BOL); Fonteinkloof, Montagu, *Lewis 4459* (SAM, NBG); Beyond Kogmansklouf, *Middlemost SAM 68460*; Wildehondskloof, Barrydale side, *Goldblatt 2845* (MO); Barrydale (-DC), *Hafström & Acocks 281* (PRE), *Galpin 4708* (PRE, GRA), *Sorensen 315* (C).

—3321 (Ladismith): Vleiland, N of Klein Swartberge (-AC), *Thompson 3182* (PRE, STE); Between Laingsburg & Ladismith, *Loubser 2254* (STE); Ladismith (-AD), *Bayliss 2436* (NBG); 9 mls W of Ladismith, *Salter 6326* (BOL); 3,4 mls from Ladismith to Barrydale (-CB), *Marsh 1425* (PRE, STE, S), *De Vos 2412* (STE); 7 mls E by S of Ladismith, *Acocks 20629* (NBG); Vanwyksdorp (-CD), *Van Breda 748* (PRE), *Archer 687* (BOL, NBG); Calitzdorp (-DA), *Van Breda 748* (PRE); Dwars-in-die Weg, Rooiberg Pass, *Thompson 1431* (PRE, STE); Between Cloete's Pass and Wagenboom, *Goldblatt 4167* (MO).

—3419 (Caledon): Slopes above Greyton (-BA), *Jones s.n.*, Nov (STE).

—3420 (Bredasdorp): Swellendam (-AB), *Archer 535* (BOL).

—3421 (Riversdale): Waterval, Riversdale (-AB), *Muir 3750* (BOL).

b. subspecies **taylorae** (L. Bol.) De Vos, stat. nov.

Tritonia taylorae L. Bol. in Ann. Bol. Herb. 4: 44 (1926). Type: Cape, prope Oudtshoorn, in collibus aridis Bankhoogte, *Taylor 251* (= BOL 12347) (BOL, holo-).

Icon: M. Page, ined. in BOL (flower slightly enlarged).

Bracts 5-10(-13) mm long. *Flowers* 40-45(-58) mm long, pale lilac or cream, sometimes richly veined. *Perianth tube* (25-)30-35(-40) mm long, ca. twice or sometimes 1,5 times the length of the segments; anticous segment sometimes with a semi-orbicular process (f. L. Bolus). *Filaments* 7-10 mm; *anthers* 4-6 mm long. *Style* 32-40(-48) mm long.

CAPE—3319 (Worcester): Slopes of Rabiesberg (-DA), *Lewis s.n.*, 26/9/ 35 (BOL); Dassieshoek Pass (-DD), NBG 91317.

—3320 (Montagu): Montagu Baths (-CC), *Martley BOL 31767*. Page BOL 31778; Near Wild Flower Garden, *Hall s.n.*, 21/9/58 (NBG), *De Vos 2411* (STE).

—3321 (Ladismith): Along Ladismith road, 10 mls out, *Lewis BOL 21648* (PRE); Gouritz River valley beyond Cloete's Pass (-DC), *Stayner s.n.*, 20/10/62 (NBG); Cloete's Pass (-DC/-D), *Muir 2392* (BOL).

—3322 (Oudtshoorn): Bankhoogte pr. Oudtshoorn (-CA), *Taylor 251* (BOL).

Without precise locality: *Thunberg* sub *Freesea rosea* (S).

12. *Tritonia flabellifolia* (Delaroche) G.J.Lewis in Jl S. Afr. Bot. 7: 30 (1941).

Plants (200-)250-400(-600) mm long. *Corm* depressed globose, 20-30(-40) mm diam., tunic fibres fine, somewhat reticulate, almost parallel towards the base. *Scape* (200-)250-400(-600) mm long, straight or slightly curved, simple or with 1-3 branches. *Leaves* 6-9, linear-lanceolate or linear, acuminate, suberect, 100-250(-450) $\times$ (2-)4-6(-10) mm, reaching to the base of the spikes, drying to a golden-brown or nut-brown, with a pale middle vein; cauline leaves few, subulate. *Spikes* 1-3, secund, dense or lax, with 3-7 flowers in a spike. *Bracts* lanceolate with elongated attenuate tips, (10-)15-30(-40) mm long; *outer* acuminate or attenuate or rarely with three acuminate tips close together, with a strong median vein towards the tip, greenish near the base, elongating to 40-70 mm after flowering; *inner* bidentate with acuminate teeth, 2-veined, shorter than the outer bract. *Flowers* zygomorphic, (42-)65-85(-95) mm long, suberect, white, cream or pale pink, with a red stripe or a narrow yellow, red outlined stripe or blotch on the three anticus segments, and often magenta in the throat. *Perianth tube* (25-)45-60(-65) mm long, tubular, widened gradually in the upper quarter to ca. 10 mm diam., (1.5-)2-3 times the length of the segments; *segments* unequal, obtuse, (12-)16-25 mm long, the posticus segment obovate, 10-15 mm wide, the other segments obovate-oblongate, (5-)7-10 mm wide. *Stamens* curved towards the posticus segment; *filaments* (13-)15-18 mm; *anthers* 5-7(-9) mm long, violet, reaching less than halfway to halfway or higher up the perianth segments, pollen pale. *Style* (30-)55-75(-85) mm long; *style branches* 4-7 mm long, overtopping the anthers and sometimes reaching the tips of the perianth segments. *Capsules* obovoid, 7-10 mm long; *seeds* shiny brown, 1.5 mm diam. *Chromosome number* $2n = 44$.

Flowering period: late September to early December.

Distribution: Cape south coastal districts from Caledon to Riversdale, and to Worcester (Fig. 15).

This species is readily distinguished by its long-tubed zygomorphic flowers that have no calli in the throat, its long, acuminate bracts which elongate considerably after flowering, and by linear or linear-lanceolate leaves which become brown (RHS 174B) when dry and have a slender pale middle vein. The perianth tube is two to three times longer than the segments (or rarely only 1.5 times longer), and the largely membranous bract is longer than the bracteole and somewhat green at its base: it is usually acuminate or rarely, in subspecies *thomasiae*, three-toothed, and is often slightly keeled upwards. In habit and floral characters it resembles *T. pallida* closely, but is distinguished by its bracts.



FIG. 19

Tritonia flabellifolia var. *major*: a, plant and front view of flower; b, outer (left) and inner (right) bract; c, flower half in a median cut; ca, low ridge-like callus. (De Vos 2437).

The species has a long and complicated history. D. Delaroche (1766) described it in his thesis as *Ixia flabellifolia*. N. L. Burman (1768) had no clear idea of Delaroche's species, as he noted under this name that it varied in its whitish and blue flowers; he also described *I. tubulosa*, with two varieties, one of which is the present species. Jacquin (1796) named the species *Gladi-*

olus roseus and Aiton (1810), adopting Jacquin's epithet, named it *Tritonia rosea*. (Klatt later described a different species from the eastern Cape Province as *T. rosea* – a later homonym.)

Ker-Gawler (1803, and again 1813) illustrated and described the plant as *T. capensis*, basing it nomenclaturally on *Houttuynia capensis* Houtt. (1780). Figure 85/3 accompanying Houttuyn's description should be chosen as lectotype, as Houttuyn mentioned that the plant he described was lost. This figure shows a regular flower and can therefore not be present *Tritonia* species.

Bentham and Hooker (1883) were the first to cast doubt on Ker-Gawler's equating the present species with *Houttuynia capensis*, observing (p.706) that the shape of the perianth in Houttuyn's figure agrees badly with *T. capensis*, and that the short spathe fits neither *Tritonia* nor *Acidanthera*. E. D. Merrill (1938) pointed out Ker-Gawler's error (J. Arnold Arbor. 19: 328) and stated that the Houttuyn figure seemed "manifestly to appertain to *Ixia*"; Lewis (1962) identified Houttuyn's plant with its symmetrical flower and equal perianth segments, with *Ixia paniculata* Delaroche, a species that occurs in several forms.

Neither Klatt nor Baker realised Ker-Gawler's misapplication of the name: Klatt (1863) called the present species *T. capensis* and Baker (1877) named it *Montbretia capensis*, after Voigt's transference of it to *Montbretia* (1845). Later (1892, 1896) Baker transferred the species to *Acidanthera*, as *A. capensis*. Lewis, in her revision of *Acidanthera* (1941), transferred the species to *Tritonia*, as *T. flabellifolia* Delaroche, this being its oldest epithet. She observed that although the bract is slightly larger and more acute than is usual in *Tritonia*, the corm, leaf and floral characters, as well as the membranous bract, belong to this genus.

Ecklon (1827) named the species *Freesea secunda*, an illegitimate name as he published no description of the genus (Nordenstam, 1972).

Ker-Gawler (1813) described two varieties of his *T. capensis* in *Curtis's Botanical Magazine*, namely var. *major* figured as t. 618 and var. *minor* (t. 1531). They differ in flower size and colouring and in the marks on the perianth, var. *major* being pale pink with a red margined yellow blotch on each anticus segment; var. *minor* has cream flowers with a narrow red stripe on these segments. Var. *major* varies slightly, as is to be seen in Jacquin's *Icones* t. 261 (1789) which shows a pale pink flower with two red lines on either side of a median yellow line on the anticus segments. Voigt (1845) regarded the two varieties as separate species, naming t. 618 *Montbretia rosea* and t. 1531 *M. capensis*.

As the greater majority of herbarium specimens can readily be separated into the two varieties established by Ker-Gawler (1813), his varieties are upheld. The Burman specimen, as well as the specimens in the Van Royen

herbarium amongst which Delaroche's type material probably occurs, belongs to Ker-Gawler's var. *minor*, and this therefore becomes the typical variety.

A few recent collections by Thomas from the Bot River-Hawston area have flowers with shorter perianth tubes and bracts which are either acuminate or have three acute teeth very close together. They are regarded as a third variety.

KEY TO THE VARIETIES

1. Perianth tube 2–3 times longer than the segments:
 2. Flowers less than 50 mm long, rarely up to 60 mm; perianth tube 25–30(–40) mm long a. var. **flabellifolia**
 2. Flowers (60–)65–75(–95) mm long; perianth tube (45–)50–65 mm long b. var. **major**
1. Perianth tube 1.5 times longer than the segments c. var. **thomasiae**

a. var. **flabellifolia**

Ixia flabellifolia Delaroche Descr. pl. aliq. nov. 24 (1766). Type: s. loc., Van Royen (L, neo-). But see below.

Acidanthera flabellifolia (Delaroche) N.E.Br. in Kew Bull. 1929: 135 (1929).

Tritonia flabellifolia (Delaroche) G. J. Lewis in Jl S. Afr. Bot. 7: 30 (1941); Goldbl. & Barnard in Jl S. Afr. Bot. 36: 310 (1970).

T. capensis (Houtt.) Ker-Gawl. var. *minor* Ker-Gawl. in Curtis's bot. Mag. 37 t. 1531 (1813) in part, excl. basionym *Houttuynia capensis* and *Gladiolus longiflorus*. Iconotype: Curtis's bot. Mag. t. 1531 (lecto-).

T. capensis (Houtt.) Ker-Gawl. sensu Klatt in Linnaea 32: 757 (1863), excl. syn. *Gladiolus* and Bot. Mag. t. 618; & in Dur. & Schinz, Conspl. Fl. Afr. 5: 204 (1895), excl. basionym.

Montbretia capensis (Houtt.) Voigt, Hort. Suburb. Calcut. 611 (1845); Bak. in J. Linn. Soc. 16: 168 (1877), excl. basionym and Bot. Mag. t. 618.

Acidanthera capensis (Houtt.) Bak. Handb. Irid. 187 (1892) & in Fl. Cap. 6: 133 (1896), excl. cit. Bot. Mag. t. 618 and syn. *Gladiolus*.

Outer bracts 8–15 mm long, acute to acuminate. *Flowers* 42–45(–60) mm long, white, cream or pale pink, the anticous segments with a narrow median red stripe or yellow stripe outlined in red in the throat. *Perianth tube* 25–30(–40) mm long. *Style* 30–35(–45) mm.

CAPE—3319 (Worcester): Between Robertson and McGregor (-DD), *Leipoldt* 3602 (BOL, PRE).

—3320 (Montagu) to —3419 (Caledon): Swellendam bei Berge Puspasvalei Voor-mansbosch, etc. —3419-BA—3320-DC), *Zeyher* 4017 (S).

—3419 (Caledon): Genadendal (-BA), *Prior s.n.* (K); Greyton, *Jones s.n.* (STE).
Without locality: *Van Royen* collection (L); *Burman* sub *Ixia flabellifolia* (G).

Type: N. E. Brown (1929) found four specimens in the Burman collection at Geneva labelled *Ixia flabellifolia* Laroche. He identified three as *Babiana* and the fourth as the true *I. flabellifolia*, as it "so accurately agrees . . . in all characters except the length of the style" with Delaroche's description of 1766. He indicated this specimen as type, as he believed the label on this sheet to be in the handwriting of D. Delaroche. On my enquiry, Dr. H. M. Burdet of Geneva, specialist in old handwriting, was unable to confirm that this label was indeed in Delaroche's hand.

Goldblatt and Barnard (1970), in their work on the Iridaceae of Daniel Delaroche's thesis, state that neither the Burman specimen nor those they found in the Van Royen herbarium in Leiden, have any claim to be the type material. They therefore chose a neotype from amongst the Van Royen specimens, namely one labelled *Tritonia viridi* Ker *proxima* and *Ixia flabellifolia* La Roche (in two different handwritings).

If, however, the label on Burman's specimen which N. E. Brown identified as type, is indeed found to be in D. Delaroche's hand, then this specimen must be the lectotype which will supersede the neotype indicated by Goldblatt and Barnard.

b. var. major (Ker-Gawl.) De Vos, comb. nov.

Tritonia capensis (Houtt.) Ker-Gawl. sensu Ker-Gawl. var. *major* Ker-Gawl. in Curtis's bot. Mag. sub t. 1531 (1813) & Bot. Mag. t. 618 (1803) in part, excl. basionym *Houttuynia capensis*, and *Gladiolus striatus*; & in Kon. & Simms, Ann. bot. 1: 228 (1805). Iconotype: Curtis's bot. Mag. t. 618 (lecto-).

T. capensis (Houtt.) Ker-Gawl. sensu Klatt in Linnaea 32: 757 (1863) in part, excl. syn. *Gladiolus* and Bot. Mag. t. 1531; & in Abh. naturf. Ges. Halle 15: 358 (1882).

Montbretia capensis (Houtt.) Voigt sensu Bak. in J. Linn. Soc. 16: 168 (1877) in part, excl. basionym *H. capensis*, and Bot. Mag. t. 1531.

Acidanthera capensis (Houtt.) Bak. Handb. Irid. 187 (1892) & in Fl. Cap. 6: 133 (1896), excl. Bot. Mag. t. 1531.

Gladiolus roseus Jacq. Ic. Rar. t. 261 (1789) & Coll. 5: 22 (1796). Iconotype: Ic. t. 261 (lecto-).

Tritonia rosea (Jacq.) Ait. Hort. Kew. ed. 2, 1: 91 (1810), excl. syn. *Houttuynia*; non Klatt (1863, 1895), nec Bak. (1892, 1896).

Montbretia rosea (Jacq.) Voigt. Hort. Suburb. Calcut. 610 (1845); non Bak. 1877 (= *T. disticha* var. *rubrolucens*).

Freesea secunda Eckl. Top. Verz. 30 (1827), nom. illeg., gen. non descr.; Nordenstam in J. S. Afr. Bot. 38: 296 (1972).

Tritonia secunda (Eckl.) Steud. Nom. Bot. ed. 2, 2: 719 (1841) nom. nud.

Ixia tubulosa N. L. Burm. Prodr. Fl. Cap. 1 (1768) in part, excl. lectotype (= *Babiana tubulosa*); N.E. Br. in Kew Bull. 1929: 137. See below.

Icones: Curtis's bot. Mag. t. 618; Jacq. Ic. Rar. t. 261; this work Fig. 19.

Outer bracts (15–)20–40 mm long, acuminate or attenuate. *Flowers* (60–)65–75(–95) mm long, pale pink or white, with a yellow median blotch or stripe often outlined in red on the three anticeous perianth segments. *Perianth tube* (45–)50–60(–65) mm long. *Style* (55–)60–85) mm.

CAPE—3319 (Worcester): Villiersdorp (-CD), *Barnard* BOL 31782; McGregor, foot of Boesmanskloof Pass (-DD), *Lewis* 6203 (NBG, MO); Robertson, *Hall* 719 (NBG); Langvlei, Robertson, *Van Breda* 2063 (PRE).

—3419 (Caledon): Caledon (-AB), *Guthrie* BOL 31781; Between Caledon and Riviersonderend (-BA), *Barker* 6843 (NBG); Am Baviaansberg bei Genadenthal, *Ecklon* 282 (S); Riviersondereinde, *Compton* 21795 (NBG), *Zeyher* 4017 (SAM, K), *Pappe* SAM 21113, 21114; Near Elim (-DA), *Frowein* PRE 16119, *Bolus* BOL 31780; Between Vogelvlei and Wisedrift (-DB), *Mathews* 32 (NBG).

—3420 (Bredasdorp): Dasberg near Stormsvlei (-AA), *Stokoe* SAM 59773; Bontebokpark (-AB), *Marais* 1 (PRE); 13 mls from Port Beaufort towards Malgas (-BC), *Lewis* 6127 (NBG); Potteberg, *David* 292 (NBG); Near Cape Infanta (-BD), *Esterhuysen* 29358 (BOL, MO); Near Bredasdorp (-CA), *Hafström & Acocks* 2069 (S).

—3421 (Riversdale): Corenterivier farm (-AA), *Muir* 5363 (BOL, PRE, GRA); In lapidosis pr. Riversdale (-AB), *Schlechter* 1815 (PRE, G, K); 5 mls S of Riversdale on Blombos road, *Thomas s.n.* (NBG); Near Zoetmelks River, *Burchell* 6739 (K); Around Albertinia (-BA), *Muir* 1157 (BOL).

Without precise locality: *Irid.* 282 (G); *Burman* (G) sub *Ixia tubulosa*.

Burman's description (1768) of *Ixia tubulosa* is that of two species, and three of the five specimens so named in his collection in Geneva are *Babiana tubulosa* (Burman f.) Ker-Gawler. One of these has been chosen as the type of this name (Lewis, 1959). The other two specimens in the collection are *Tritonia flabellifolia* and *Engysiphon pictus* (Foster) G.J. Lewis.

c. var. *thomasiae* De Vos, var. nov.

Ab aliis varietatibus *Tritoniae flabellifoliae* distinguitur tubo perigonii non nisi 1,5-plo longiore quam segmentis, bractea exteriori aliquando tridentata ad apice, dentibus approximatis, acuminatis.

Type: Cape, Caledon, Protea farm between Hawston and Bot River, *Thomas s.n.* NBG 77202 (NBG, holo-, STE).

Outer bracts 10–25 mm long, acuminate or sometimes with three long

acuminate tips close together, keeled near the tip. *Flower* 50–67 mm long, rose-pink inside, with a yellow blotch outlined in red on the anticous perianth segments, deeper pink outside. *Perianth tube* 30–45 mm long, only ca. 1.5 times the length of the segments. *Style* 45–55 mm.

CAPE—3420 (Caledon): Protea farm, between Hawston and Bot River (-AC), Thomas NBG 70.508, 77.202, 87.945, Thomas s.n., 6/11/64 (STE).

13. *Tritonia lineata* (Salisb.) Ker-Gawl. in Kon. & Sims, Ann. Bot. 1: 228 (1805).

Plants (150–)400–600(–850) mm long. *Corm* shortly ovoid, 10–20 mm diam., sometimes with small cormlet offsets at the base; tunic fibres fine, reticulate, towards the base long-reticulate. *Scape* simple or branched, (150–)400–600(–850) mm long. *Leaves* 4–8, linear-lanceolate or linear-ensiform, (sub)erect or spreading, acute, (40–)150–300(–500) × (2–)7–10(–15) mm, with a prominent vein near each edge and in the middle, usually not reaching the base of the spike, often drying to brown or dark brown with pale veins; cauline leaves 1–3, 25–100 mm long. *Spike* somewhat secund, lax, sometimes with one branch, with (1–2–)7–12 flowers. *Bracts* membranous, usually brown especially in the upper half, 7–10(–12) mm long; *outer* 3–5-toothed with the median tooth sometimes reduced, or irregularly toothed, striate, with a stronger median vein; *inner* bifid with acuminate teeth, with 2 dark veins and papery margins. *Flowers* slightly zygomorphic, funnel-shaped, (25–)30–35(–40) mm long, cream, pale yellow or straw-coloured to pale apricot, with dark veining and sometimes apricot tints outside especially towards the tips of the tepals. *Perianth tube* funnel-shaped, 10–15 mm long, narrow in the lower half, widened to 8 mm diam. upwards; *segments* obtuse, subequal in length, (15–)18–20(–23) mm long, the median posticous segment (8–)10–12(–14) mm wide, obovate-lanceolate, the other segments 5–8(10) mm wide, oblanceolate, sometimes with a low yellow, ridge-like callos on the median anticous segment. *Stamens* curved towards the posticous side; *filaments* 7–10(–12) mm; *anthers* unilateral, 5–9 mm long, pale or with dark lateral stripes, reaching halfway or almost halfway up the perianth segments, pollen cream. *Style* (15–)18–25 mm; stigmatic branches 3–5 mm long, reaching or overtopping the anther tips. *Capsules* subrotund-trigonus or shortly obovoid-trigonus, ca. 8 mm long; *seeds* dark brown, angled, 2.5 mm diam.

Flowering period: August to November (to December).

Distribution: eastern and south eastern Cape Province, Transkei, Natal, north eastern Orange Free State, south eastern Transvaal, and Lesotho (Fig. 16).

This species was first described by Aiton (1789) as var. *stricta* of *Ixia squalida*. Seven years later Salisbury, realising its difference, described it as *Gladiolus lineatus* and cited Aiton's variety. He was followed by Ker-Gawler (1800) who transferred it in 1805 to his new genus *Tritonia*.

The species is distinguished by its short-tubed cream, straw-coloured, yellow or salmon-pink flowers (e.g. RHS 20B, C, 28C, D, 11B, C), "finely and curiously pencilled with dark lines" (Ker-Gawler, 1800), and by leaves which show three prominent veins, two of which are near the leaf margins, and especially prominent in the dried state. A small yellow area occurs in the throat on the anticonic perianth segments of the cream and straw-coloured flowers, and sometimes the median anticonic segment has a low callosity in the form of a longitudinal ridge. It differs from the closely related *T. disticha* in flower colouring and slightly shorter perianth tube, as well as in its different flowering period.

Specimens with cream or straw-coloured flowers, often with orangy tints on the reverse, occur in the eastern Cape Province and Natal. Such are figured in *Curtis's Botanical Magazine* t. 487 and in Redouté's *Liliacées* t. 55. In herbarium specimens the tepal tips often become pale brown.

Most specimens from the Orange Free State, Lesotho and the Drakensberg region of Natal have pale yellow flowers without orange tints outside, and often with less distinct veining. This form was described as *T. flavida* by Schlechter (1908). Another variation which has pale pink flowers, was described as *T. kraussii* by Baker (1892). These are apparently colour variations only and are not upheld here as separate varieties.

The two specimens which Redouté figured (t. 55 and 400) were described as var. *minor* and var. *major* respectively (*Liliacées* sub t. 400, 1813). There is not enough evidence to uphold these varieties as they are connected by numerous intermediates. But certain collections from the south eastern Cape Province comprise distinctly smaller plants with much shorter and narrower, erect leaves, and these are now described as a separate variety.

KEY TO THE VARIETIES

- | | |
|--|---------------------------|
| Plants more than 300 mm long; leaves more than 150 × 5 mm, suberect or spreading | a. var. lineata |
| Plants up to 300 mm long; leaves less than 150 × 5 mm, usually erect | b. var. parvifolia |

a. var. **lineata**

Tritonia lineata (Salisb.) Ker-Gawl. in Kon. & Sims, Ann. Bot. 1: 228 (1805); Ait. Hort. Kew. ed. 2, 1: 91 (1810); Klatt in Linnaea 32: 759 (1863) & in Dur. & Schinz, Consp. Fl. Afr. 5: 206 (1895); Bak. Handb. Irid. 194 (1892) & in Fl. Cap. 6: 25 (1896).

Gladiolus lineatus Salisb. Prodr. 40 (1796); Ker-Gawl. in Curtis's bot. Mag. t. 487 (1800). Syntypes: sub *Ixia squalida* var. *stricta*, Hort. Kew. 1781 (BM, lecto-) & 1778 (BM). See below.

G. lineatus Salisb. var. *minor* & var. *major*, Red. Lil. 7 t. 400 (1813). Iconotypes: Red. Lil. t. 55 & t. 400 respectively.

Montbretia lineata (Salisb.) Bak. in J. Linn. Soc. 16: 169 (1877), excl. syn. *Ixia thunbergii*.

Tritonixia lineata (Salisb.) Klatt in Abh. naturf. Ges. Halle 15: 357 (1882).

Ixia squalida Ait. var. *stricta* Ait. Hort. Kew. 1: 61 (1789). Syntypes: Hort. Kew. 1778 (BM), 1781 (BM, lecto-).

Gladiolus venosus Willd. Enum. 1: 58 (1809). Type: Cap. b. Spei, Willdenow 929 (B, holo-).

Tritonia catenularis Salisb. in Roy. Hort. Soc. Trans. 1: 319 (1812), nom. superfl. Type as for *G. lineatus*.

Ixia reticulata Thunb. Fl. Cap. ed. 2, 60 (1823). Type: Cap. b. Spei, Thunberg 989 (UPS, holo-).

Tritonia kraussii Bak. Handb. Irid. 194 (1892) & in Fl. Cap. 6: 125 (1896), excl. syn. Type: Natal, summit of Table Mountain, Krauss 200 (K, lecto-).

T. flavida Schlecht. in Bot Jb. 40: 91 (1908). Type: Jolivet, unweit Fairfield, Alexandra Country, Rudatis 91 (B, holo-).

Icones: Curtis's bot. Mag. t. 487; Red. Lil. 1 t. 55 & 7 t. 400; this work Fig. 20.

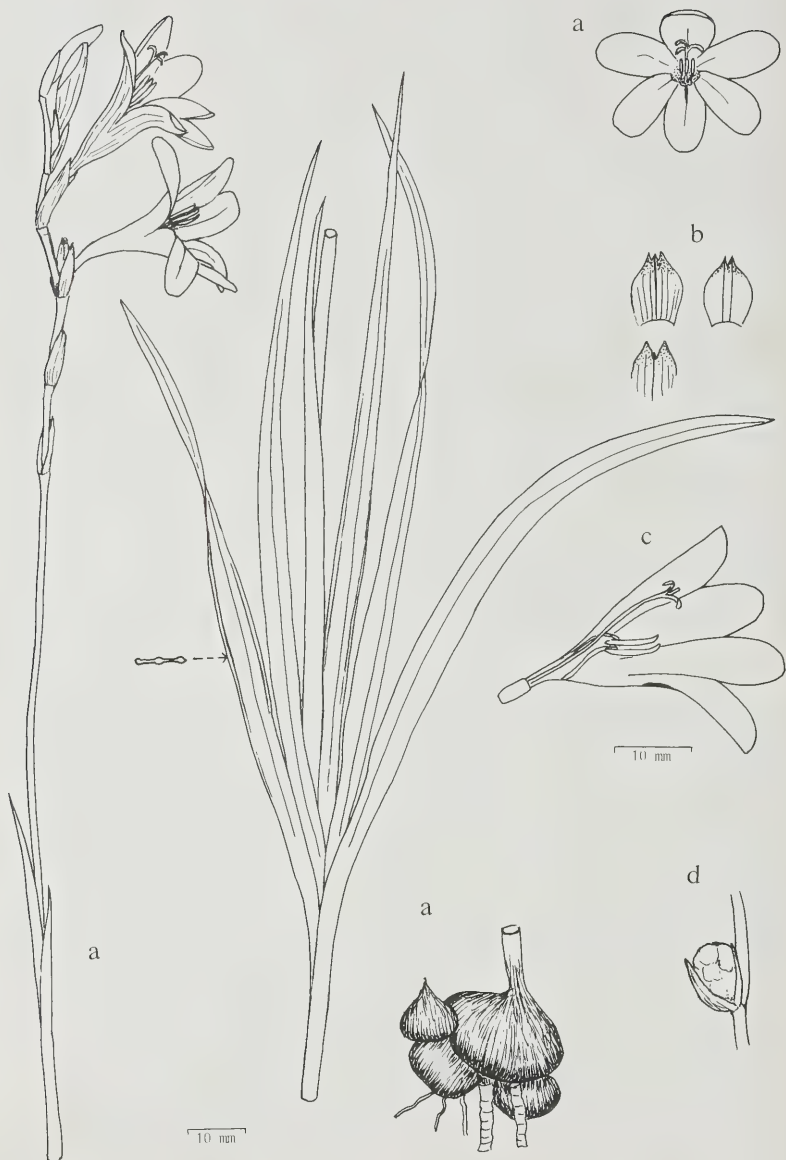
Type: As Salisbury (1796) cited only *Ixia squalida* β Soland. in Ait., the type of the latter in BM is also the type of *T. lineata*. There are two sheets of type material in BM dated 1778 and 1781. The latter, being the better specimen, is chosen as lectotype.

Plants (300-)400-600(-850) mm long. *Scape* (300-)400-600(-850) mm, simple or branched, with 7 or more flowers. *Leaves* linear-lanceolate or linear-ensiform, suberect or spreading, 150-300(-500) $\times$ (5-)7-10(-15) mm, usually not reaching the base of the spike, often drying to brown or dark brown with pale veins. *Style* up to 25 mm. *Chromosome number* $2n = 44$.

Distribution: widespread, from Uniondale and Humansdorp throughout the eastern Cape, Transkei, Natal, north eastern Orange Free State, to south eastern Transvaal and into Lesotho.

TRANSVAAL—2729 (Volksrust): Volksrust (-BD), Sidey 3973 (PRE, S).

ORANGE FREE STATE—2728 (Frankfort): Near Warden (-DD), Hafström & Acocks 332 (PRE).



—2827 (Senekal): Near Meguathling, Clocolan (-DC), *Kinges* 1216 (PRE); Ficksburg (-DD), *Rogers* 15923 (BOL, GRA, Z), *Galpin* 13842 (PRE, S), *Galpin* BOL 31739.

—2828 (Bethlehem): Signal Hill, Bethlehem (-AB), *Potgieter* 216 (PRE); Road Bethlehem to Clarens (-AD), *Van Zinderen-Bakker* 198 (PRE, BLFU); Golden Gate Glen Reenen (-DA), *Liebenberg* 7290 (PRE).

—2829 (Harrismith): Platberg (-AC), *Jacobs* 2272, 3043 (PRE); Harrismith, *Sankey* 292 (K); Kerkenberg, *Van Zinderen-Bakker* 1270 (BLFU).

NATAL—2730 (Vryheid): Paardeplaats 10 mls E of Wakkerstroom (-AD), *Devenish* 103 (PRE).

—2828 (Bethlehem): Royal National Park, Drakensberg (-DB), *Sidey* 2023 (S), *Oliver* 348 (NH); Mont-aux-Sources (-DD), *Guthrie* 4927 (BOL).

—2829 (Harrismith): Cathedral area near hotel (-CC), *Schelppe* 834 (NU).

—2830 (Dundee): Airfield (-AA), *Shirley* 126 (NU); Nkandla, 1 ml W of P.O. Qudeni (-DB), *Codd* 6999 (NH, NU).

—2831 (Nkandla): Intunzini (-BC), *Garland* NH 38636; Eshowe (-CD), *Gerstner* 2551 (NH), *Lawn* 167 (NH); Umhlutuzi valley near Eshowe, *Gerstner* NH 22562; Melmoth (-CB), *Porter s.n.*, Sept. 1955 (NBG, STE).

—2929 (Underberg): Impendhle distr, Loteni Nature Reserve (-AD), *Phelan* 106 (NU); Kamberg (-BC), *Wright* 1538 (NU); Sani Pass (-CB), *Gillies* 113 (NU).

—2930 (Pietermaritzburg): Howick (-AC), *Moll* 1003 (NU); Manderston (-CB), *Thomas* 21 (NU); Camperdown (-DA), *Barker* 5310 (NBG); Cato Ridge, *McLean & Ogilvie* NH 27888; Inchanga, *Marloth* 4091 (K); Umzinyati (-DB), *Wood* 11569 (S); Inanda, *Wood* 669 (STE, K); Botha's Hill (-DC), *Hutchinson e.a.* 45 (NH), *Hutchinson* 4693 (K); Krantzklouf (-DD), *Haygarth* 68 (STE); Pinetown, Kloof, *Johnson* 1348 (NH).

—2931 (Stanger): Phoenix Umgebung (-CA), *Schlechter* 3114 (Z); Chatsworth (-CC), *Coleman* 178 (NH).

—3029 (Kokstad): Circa Kokstad (-CB), *Tyson* 507 (BOL, SAM, K), 1105 (BOL, SAM, etc.).

—3030 (Port Shepstone): St. Michael (-AB), *Thode* 5098 (STE); Hlokozi, Alexandra City (-AD), *Rudatis* STE 2371; Jolivet unweit Fairfield, *Rudatis* 91 (B); Mvenyani (-CA), *Bandert* 9 (GRA); Shelley Beach (-CD), *Strey* 9241 (NU, SRGH).

—3130 (Port Edward): Ca 5 mls from Port Edward (-AA), *Hilliard* 1659A (NU).

TRANSKEI—3127 (Lady Frere): Near Cala (-DA), *Royffe* 174 (GRA).

—3128 (Umtata): Pomona, Ugie (-AA), *Gill* 143 (MO).

—3129 (Port St Johns): Ntsubane Forest Sta. (-BC), *Venter & Vorster* 10 (K, SRGH).

—3228 (Butterworth): Idutywa (-AB), *Reynolds* 1041 (BOL).

LESOTHO—2828 (Bethlehem): Leribe (-CC), *Dieterlen* 245 (SAM, K).

—2927 (Maseru): Mamathes (-BB), *Guillarmod* 585 (PRE); Mahlatsa, Berea, *Guillarmod* 1595 (PRE); Molima Nthuse Pass (-BC), *Schmitz* 6230, 6283 (PRE); Rama campus, *Schmitz* 4171 (PRE).

—2928 (Marakabei): Khatleleli (-BD), *Dieterlen* 245 (PRE).

—2929 (Underberg): Sehlabathebe Nat. Park (-CC), *Hoener* 1858 (PRE).

CAPE—3126 (Queenstown): Queenstown distr., *Sidey* 3726 (S); Madeira, Queenstown (-DD), *Thorns* BOL 31740.

—3127 (Lady Frere): Clarke's Siding near Dordrecht (-AC), *Bayliss* 7942 (MO).

FIG. 20

Tritonia lineata var. *lineata*: a, plant and front view of flower; b, outer (left) and inner (right) bract; c, flower half; d, capsule. (*Olivier* 2603).

- 3225 (Somerset East): Klein Brintjieshoogte (-CB), *Drège* 3499 (S); Bosberg (-DA), *MacOwan* 1199 (BOL, K, S).
- 3226 (Fort Beaufort): Fairford (-BD), *Cotterrell* 50 (GRA); Alice (-DD), *Goldblatt* 438, 370 (BOL).
- 3227 (Stutterheim): Kingwilliamstown (-CD), *Liebenberg* 3141 (K), *Tyson* 3130 (SAM); Komgha (-DB), *Flanagan* SAM 3612; 10 mls from East London to Kingwilliamstown (-DD), *Marais* 448 (BOL, GRA); East London, *Rattray* 192 (GRA), *Sidey* 1145 (S).
- 3323 (Willowmore): 3–5 km W of Louterwater (-DC), *De Vos* 2567 (STE).
- 3324 (Steytlerville): Near Kareedow (-CD), *De Vos* 2568 (STE); Baviaanskloof (-DA/-DB), *Bayliss* 6882 (MO).
- 3325 (Port Elizabeth): Bronne Reservaat (-CD), *Olivier* 2603 (STE); Gravel road SW of Addo village (-DA), *De Vos* 2569 (STE); Port Elizabeth (-DC), *Drège* s.n., Oct. 1908 (GRA); Aerodrome, *Long* 155 (GRA, K); Baakens Valley, *Olivier* 833 (NBG).
- 3326 (Grahamstown): Near Alicedale (-AC), *Bayliss* 6814, 7092 (MO); Coldspring, *Dlumane* P62 (GRA); Fort Beaufort road, 10 mls from Grahamstown (-BA), *Bayliss* 2997 (MO, SRGH); Grahamstown (-BC), *Daley* 866 (GRA); Between Blaauw Krantz & Kaffir Drift (-BD), *Burchell* 3710 (K).
- 3422 (Mossel Bay): Mossel Bay (-AA), *Wall* 47 (S).
- 3424 Humansdorp: Seekoeirivier (-BB), *Montgomery* 1 (STE); Cape St Francis, *Baylis* s.n., 21/10/75 (MO).
- Without precise locality: *Pappe* s.n. (SAM); *Drège* 3499c (L); *Irid.* 99 (G, MO), 101 (G), 280 (G); *Thunberg* 989 (UPS); Hb Burman sub *Ixia foliis linearibus* (G); *Burchell* s.n. (K); *Harvey* s.n. (K); *Kolbe* BLFU 1187.

Figure 9592 in *Curtis's Botanical Magazine* (1939–40) is that of a yellow-flowered plant which is named *Tritonia flavida*. It was collected in Natal in 1927 and cultivated for many years in England. It may be the yellow-flowered variation of var. *lineata*, although the stamens are not shown to be contiguous or curved towards the posterior side of the flower.

b. var. *parvifolia* De Vos, var. nov.

A varietate *lineata* foliis brevioribus et angustioribus, plerumque erectis, multo brevioribus quam scapo differt.

Type: Cape: Jeffreys Bay, duineveld, *Fourcade* 3345 (STE, holo-; PRE, K, MO).

Plants 150–200(–300) mm long. *Scape* 150–200(–300) mm long, usually unbranched, with 1–2(–4) flowers. *Leaves* linear-lanceolate, usually erect, (40–)50–80(–150) × 2–5 mm, usually not reaching even near the base of the spike, drying to light brown. *Style* 15–18 mm.

Distribution: south eastern Cape districts of Humansdorp, Uitenhage and Port Elizabeth.

CAPE—3325 (Port Elizabeth): Port Elizabeth, *Holland* BOL 31771; Addo National Park (-DA), *De Vos* 2571 (STE); Zwartkops Rivier (-DB) *Zeyher* 3972 (SAM, K); On the hills of Adow and the fields near the Zwartkop River, *Ecklon & Zeyher* 1021 (GRA partly, PRE, SAM, K), *E. & Z.* 101 (GRA, MO partly, not G). *Perse-*

verance (-DC), *Rodin 1246* (BOL, K, MO); Inter Uitenhage & Bethelsdorp saltpan, *Fries e.a.* (SAM 68099, K).

—3424 (Humansdorp): Jeffreys Bay and Ferreira Town near sea (-BB), *Gillett 2319* (STE); Jeffreys Bay duineveld, *Fourcade 3345* (PRE, STE, K, MO); Humansdorp, *Loubser 881* (NBG).

Compared with the wide range of var. *lineata*, this variety has a restricted distribution in the south eastern Cape Province. It is distinguished by its small erect leaves and by flowers that are identical with the cream and straw-coloured variations of var. *lineata* and often have, like the latter, a small ridge-like callus on the median anticus perianth segment. It is not the same as var. *minor* which was described in Redouté's *Liliacées* 7 sub t. 400. The latter has much longer leaves and is now incorporated with the typical variety.

The leaves of var. *parvifolia* resemble those of *T. strictifolia* and poor herbarium specimens can easily be confused. The flowers, however, are different and the two taxa have now been placed in separate sections of the genus. *T. strictifolia*, with its more zygomorphic flowers and high calli, is closely allied to *T. securigera* and *T. laxifolia*, and has therefore been placed in section *Montbretia*.

14. ***Tritonia disticha*** (Klatt) Bak. Handb. Irid. 193 (1892) & in Fl. Cap. 6: 123 (1896).

Plants (200–)500–800(–1 000) mm long. *Corm* depressed globose to ovoid, 10–30 mm diam.; tunic fibres elongated-reticulate, almost parallel towards the base. *Scape* simple or 1–3-branched, sometimes slightly flexuose, (200–)500–800(–1 000) mm long. *Leaves* 4–8, linear to linear-lanceolate, erect or suberect, acute or acuminate, (250–)350–500(–700) × (5–)8–12(–20) mm, with a strong middle vein and a strong vein near each edge, reaching, or sometimes not reaching, the base of the spike, usually drying to dark brown with pale veins; cauline leaves 2–4, 30–300 mm long. *Spikes* 1–3(–4), at first distichous, later subsecund, lax, with 4–12 or more flowers. *Bracts* membranous, golden-brown, darker brown upwards, with wide papery margins, (8–)10–15(–20) mm long; *outer* ovate or ovate-lanceolate, acute or acuminate or 3-toothed with the middle tooth sometimes reduced, or irregularly toothed, striate, with a strong dark median vein, the lower ones sometimes elongating after flowering; *inner* bidentate with acuminate teeth, with 2 strong dark veins, often slightly shorter than the outer. *Flowers* slightly zygomorphic, funnel-shaped, (20–)25–30(–35) mm long, bright red, orange-red or pink, with a small yellow, sometimes red-margined, blotch on the anticus perianth segments, sometimes with dark veining. *Perianth tube* funnel-shaped, (8–)12–16 mm long, with the basal 3 mm

narrow, widened upwards to 8–10 mm diam., subequal to or slightly longer, or rarely slightly shorter, than the segments; *segments* shortly elliptical or oblanceolate-obovate, obtuse, spreading, subequal in length, (10–)15–18(–20) mm long, the median posticous segment 8–10 mm wide, others 5–6 mm, the median anticous segment sometimes with a low yellow callus. *Stamens* curved towards the posticous side; *filaments* 7–12 mm long; *anthers* 5–7 mm long, curved, pink or yellow, reaching halfway or higher up the perianth segments. *Style* (15–)18–22 mm; *stigmatic branches* 2–4 mm long, usually overtopping the anthers. *Capsules* subglobose or obovoid, ca. 10 mm long; *seeds* brownish-black, shiny, minutely alveolate, 2 mm diam.

Flowering period: (November to) December to February (to March).

Distribution: from the south eastern Cape Province throughout Transkei and Natal to north eastern Orange Free State and south eastern Transvaal, and into Swaziland. (Fig. 16).

This species, which now includes *T. rubrolucens*, is closely related to *T. lineata*, resembling it in general habit and especially in its long, erect or suberect, leaves which have a prominent vein near each edge and large amounts of tannin in the epidermis (De Vos, 1982a), usually causing the leaves, on drying out, to turn dark brown except for their pale veins. The distribution of the two species is almost similar. *T. disticha* differs from *T. lineata* in its red, pink or orange-red flowers with less distinct veining and with a yellow blotch in the throat on the anticous perianth segments, as well as in its different flowering period (summer). Faded herbarium specimens can hardly be distinguished when the flower colouring or flowering period is not mentioned.

The species was first described by Klatt (1863) as *T. rosea*. This name is an illegitimate later homonym of *T. rosea* (Jacq.) Aiton (1810) which is *T. flabellifolia*. Foster (1936) renamed the species *T. rubrolucens*, being unaware that Klatt had described Drège's collection of the same species (Drège 4549) in B, as *Tritonixia disticha*. This species and *T. rubrolucens* are now treated as conspecific, as a wide range of intermediates which connect the two taxa occurs.

KEY TO THE SUBSPECIES

- Outer bracts acute or acuminate, or obtuse and apiculate, usually not 3-toothed, the lower ones on the spike often elongating after flowering a. subsp. **disticha**
- Outer bracts 3-toothed, the middle tooth sometimes reduced, or irregularly toothed, or the lower ones sometimes acute, not elongating after flowering b. subsp. **rubrolucens**

a. subsp. *disticha*

Tritonixia disticha Klatt in Abh. naturf. Ges. Halle 15: 356 (1882). Type: South Africa, Omsamwubo, Höhe am Fluss, *Drège* 4549 (B, holo-; P, S. iso-). See below.

Tritonia disticha (Klatt) Bak. Handb. Irid. 193 (1892) & in Fl. Cap. 6: 123 (1896); Klatt in Dur. & Schinz, Consp. Fl. Afr. 5: 205 (1895).

T. coccinea L. Bol. in Ann. Bol. Herb. 4: 27 (1925); non Eckl. Top. Verz. 29 (1827). Type: Cape, Pondoland, Port St Johns, *McNair* s.n. NBG 89/23 (BOL, holo-).

Bracts up to 20 mm long; *outer* as described in key. *Flowers* (20–)30–35 mm long, bright red or pink. *Perianth tube* subequal to or slightly longer than the segments. *Style* 14–20 mm long.

NATAL–TRANSKEI—3029 (Kokstad): Clydesdale (-BD), *Schlechter* 6620 (B, L, Z); Ingeli slopes (-DA), *Strey* 6378 (NH).

NATAL—3030 (Port Shepstone): Near Highflats (-AC), *Grant* 3568 (MO); Dumisa am Ifafas (-AD), *Rudatis* 228 (S); Melisa, Port Shepstone & Margate (-CB-D), *Hafström* & *Acocks* 333 (S); Port Shepstone (-CB), *Sidey* 3235 (S); Marburg, *Thode* 5597 (STE); Izotsha Falls, *Prosser* 1418 (K); Paddock (-CC), *Strey* 6136 (NH); Mgongongo (-CD), *Strey* 9451 (NH).

TRANSKEI—3129 (Port St Johns): Omsamwubo. Höhe am Fluss (-AD/-DA), *Drège* 4549 (P, S); Port St Johns (-DA), *Galpin* 3443 (BOL), *McNair* NBG 89/23 (BOL), *Moss* 4317 (BM), *Schonland* 4094 (GRA); Lusikisiki (-BC), *Eglin* NBG 2269/35 (BOL); Mt. Thesiger, (-CB), *Hilliard* 1072 (NU).

—3130 (Port Edward): Port Edward, southern side (-AA), *Bayliss* 2516 (GRA, B, G), *Strey* 4506 (NH, PRE); Umtamvuna River, *Thode* 5099 (STE); 1 mile from Umtamvuna River bridge, *Codd* 10702 (PRE).

Without precise locality: *Drège* 4549 (B); Pondoland, *Bachman* 362 (BM); Wild coast, Transkei, *Van der Riet* NBG 30/63 (STE).

Type: No precise locality is indicated on the holotype sheet, *Drège* 4549 in B. On the isotype sheets in S and P, however, the locality is given as Omsamwubo. This is the river with its mouth at Port St Johns in the Transkei.

This subspecies may be regarded as a low altitude form of the species, ranging from Port St Johns more or less to Margate in Natal, over a distance of some 120 kilometres. Several collections connect the two subspecies and some cannot be correctly placed, e.g. Hb Moss 16034 in BM and K, from Lusikisiki. See also under subspecies *rubrolucens*.

Klatt (1882), followed by Baker (1896), incorrectly described the anthers as being twice as long as the filaments and the spike as distichous (whence the name). As in other species of *Tritonia*, the spike is at first, before the opening of the flowers, distichous, but later becomes subsecund. Baker also incorrectly described the perianth segments as being twice as long as the

tube and used this character in his key to distinguish *T. disticha* from other species such as *T. lineata*.

b. subsp. **rubrolucens** (Foster) De Vos, stat. nov.

Tritonia rubrolucens Fost. in Contr. Gray Herb. Harv. N.S. **114**: 146 (1936), nom. nov. pro *T. rosea* Klatt, nom. illeg. Type as for *T. rosea*.

T. securigera Ker-Gawl. sensu Eckl. Top. Verz. 29 (1827); non (Ait.) Ker-Gawl. (1805).

T. rosea Klatt in Linnaea **32**: 760 (1863) & in Dur. & Schinz, Consp. Fl. Afr. **5**: 207 (1895); Bak. Handb. Irid. 194 (1892) & in Curtis's bot. Mag. **119** t. 7280 (1893) & in Fl. Cap. **6**: 126 (1896); hom. illeg., non (Jacq.) Ait. 1810 (= *T. flabellifolia* (Delaroché) Lewis). Type: Cape, Katberg, über den Wäldern, Ecklon & Zeyher Irid. 98 (S, lecto-; SAM partly, G). See below.

Montbretia rosea (Klatt) Bak. in J. Linn. Soc. **16**: 169 (1877), non Voigt 1845 (= *T. flabellifolia*).

Tritonixia rosea (Klatt) Klatt in Abh. naturf. Ges. Halle **15**: 356 (1882).

Icones: Curtis's bot. Mag. **119** t. 7280; Batten & Bokelmann Pl. 31/9; Pearse p. 83 Fig. 2.

Bracts up to 15 mm long; *outer* as described in the key. *Flowers* 25–35 mm long, bright red, orange-red or bright pink, sometimes with dark veining. *Perianth tube* subequal to or slightly longer or shorter than the segments. *Style* 18–22 mm long.

Distribution: as indicated for the species.

TRANSVAAL—2730 (Vryheid): South Hill, Wakkerstroom (-AC), Galpin 9872 (PRE, K); Oshoek, Wakkerstroom (-AD), Devenish 416 (NH, PRE), Mauve 4534 (PRE); Kastrolnek, Van Dam 28 (PRE).

ORANGE FREE STATE—NATAL—2829 (Harrismith): Van Reenen (-AD), Wood 9521 (NH), Thode 3915 (STE); Harrismith, Manyenyzaberg, Jacobsz 514 (PRE); Oliviershoek, Natal (-CA), Thode 9218 (STE); Cathedral Peak area (-CC), Schelpe 116 (NU), Robinson 56 (NU).

NATAL—2830 (Dundee): 51 km S of Nqutu on road to Kranskop (-DB), Davidse 6886 (S).

—2831 (Nkandla): Ngoye (-DC), Huntley 720 (NU).

—2929 (Underberg): Giant's Castle Game Reserve (-AD), Trauseld 584 (NU); Vergelegen Nature Reserve (-CB), Hilliard & Burt 11185 (NU).

—2930 (Pietermaritzburg): Howick (-AC), Medley-Wood 9358 (BOL, PRE); Mt Gilboa (-AD), Hilliard & Burt 11867 (NU); Ahrens (-BB), Fisher 965 (NU, NH); Zwartkop (-CB), M. Wood 10240 (NH); Richmond (-CD), Saunders s.n. (K); Inanda (-DB), M. Wood 384 (BM), 784 (NH), Johnson 1410 (NH); Bothas (-DC), M. Wood 12390 (PRE); Kloof (-DD), Lawson 680 (NU), Dohse e.a. 32 (NH); Hillcrest, Coleman 298 (NH).

—3029 (Kokstad): Insiswa (-CD), Schlechter 6471 (C, S, Z); Weza-Ngeli slopes (-DA), Strey 6378 (NU, PRE).

—3030 (Port Shepstone): Dumisa (-AD), Huntley 153 (NU); 10 mls inland from

Scottburg (-BC), *Poynton* 31 (NU); Oribi Flats (-CA), *Rump s.n.* (NU); Mgongogo (-CD), *Strey* 9451 (NH); Skyline, Uvongo, *Nicholson* NH 67241.

—3130 (Port Edward): Port Edward (-AA), *Huntley* 722 (NU).

TRANSKEI—3128 (Umtata): Baziya (-CB), *Baur* 431 (BOL, GRA, NBG, K).

—3129 (Port St Johns): Fraser Falls (-BC), *Leighton* 2999 (BOL); Umkweni (-BD), *Tyson* 2623 (BOL, NBG).

—3228 (Butterworth): Kentani Valley (-CB), *Pegler* 266 (BOL).

SWAZILAND—2631 (Mbabane): Hlatikulu (-CD), *Stewart* 57 (K), 2584 (NBG).

CAPE—3226 (Fort Beaufort): 13.12, i.e. Winterberg zw. Tarka u. Katberg (-AD), *Ecklon & Zeyher Irid* 98 (SAM partly, G), *Ecklon & Zeyher* 13.12 (L, C); Winterberg, *Zeyher s.n.* (K); Katberg near Black Bridge (-BC), *Dyer* 2317 (GRA); Katberg, über den Wäldern, *Ecklon & Zeyher Irid* 98 (S); Katberg, *Galpin* 1704 (GRA, PRE, K), *Harvey s.n.* (K); Katberg Pass, *Adams* 194 (NU); Hogsback, Alice (-DB), *Barker* 39 (BOL); Gaikaskop, Hogsback, *Moss* 15010 (BM), *Young* 988 (K).

—3227 (Stutterheim): Evelyn Valley, *Leighton* 2719 (BOL, GRA, PRE); Summit of mountain above Dohne (-CB), *Flanagan* 2306 (BOL, NBG); Cata Forest Res., Keiskammahoek (-CA), *Strey* 3326 (PRE).

—3325 (Port Elizabeth): Port Elizabeth (-DC), *Kemsley* 1108/174 (GRA); Uitenhage pone Zwartkopsrivier, *Pappe* 239 (SAM, K).

—3326 (Grahamstown): 35 km voor Fort Beaufort vanaf Grahamstad komende (-BA), *Von Teichman* 369 (PRE); 10.10, i.e. Mündung Boesmansrivier (-DA), *Ecklon & Zeyher* 99 (SAM).

Without precise locality: *Drège s.n.* sub *T. rosea* (C); sub *T. securigera* (L); British Kaffraria, *Cooper* 1807 (K); Orange Free State, *Cooper* 3201 (PRE, K); Said to be from Riversdale, *Bayliss* 2421 (G) (cultivated? wrong label?).

Type: Klatt (1863) cited two syntypes: "Ex horto Hesse, leg. *Bergius*, leg. *Krebs*; leg. *Ecklon & Zeyher, Irid.* 98. Herb. Reg. Berol". An answer from B to my enquiry stated that these syntypes are no longer there. The only isotypes found are *Ecklon & Zeyher Irid.* 98 in SAM, G and S. Those in G and S are the same species (in G from region 13.12, i.e. Winterberg zwischen Tarka und Katberg, and in S from 12.3, i.e. Katberg über den Wäldern). The isotype in SAM comprises two species: two very poor specimens are similar to those in G and S, whereas the other may be *T. lineata*. As the specimens in SAM are so poor, *Ecklon & Zeyher Irid* 98 in S is chosen as lectotype.

This subspecies is very closely related to, and more or less sympatric with *T. lineata*, differing in its later flowering period (summer), in flower colouring and a less pronounced veining on the perianth, and often in a slightly longer perianth tube. Flower colouring varies from pink to bright red or orangy-red. *Baur* 431 in BOL from Baziya in the Transkei has pinkish flowers. *Schelpé* 5069 in BOL, from near Port Edward, has "yellow or light red" flowers. Whether this collection constitutes an unusual colour form or hybrids between *T. lineata* and subspecies *rubrolucens*, is uncertain. Its flowering period is that of subspecies *rubrolucens*.

The outer bracts of this subspecies vary. In some collections, e.g. *Moss 15010* in BM, from Gaika's Kop near Alice, the outer bracts of the lowermost flowers of the spike are acute or acuminate and approximate bracts of subspecies *disticha*.

5. Section MONTBRETIA

Sect. *Montbretia* (DC.) Pax in Nat. Pfl. Fam. **2** (5): 155 (1888) in part, excl. *T. rosea*; Diels, *ibid.* ed. 2, **15a**: 491 (1931).

Montbretia DC. in Bull. Sci. Soc. Philom. **3**: 151 (1803); Reichenb. Consp. Regni Veg. **1**: 60 (1828); Klatt in Linnaea **32**: 752 (1863) & in Abh. naturf. Ges. Halle **15**: 359 (1882); Bak. in J. Linn. Soc. **16**: 167 (1877) in part, excl. all spp. except *M. securigera*, *M. laxifolia*, *M. strictifolia*; Stapf in Curtis's bot. Mag. **150** sub t. 9038 (1924).

Tritonia subgenus *Montbretia* (DC.) Bak. Handb. Irid. 190 (1892) & in Fl. Cap. **6**: 199 (1896).

Type species: T. securigera (Ait.) Ker-Gawl.

Leaves lanceolate to linear, rarely with undulate margins, rarely slightly succulent. *Inflorescence* a simple or few-branched spike or rarely reduced to a few terminal stalked flowers (*T. florentiae*). *Flowers* zygomorphic, somewhat 2-lipped or sometimes funnel-shaped or rarely almost salver-shaped, red to orange, salmon or yellow, sometimes pink or cream. *Perianth tube* funnel-shaped or tubular, slightly shorter to up to four times as long as the segments; *segments* oblong or oblanceolate, often subequal in length, the posticous segment usually widest, often concave and erect, the three anticus segments, or rarely only the median anticus segment, with a large yellow callus in or near the throat. *Stamens* and *style* curved towards or against the posticous segment; *anthers* usually contiguous, facing the anticus side of the flower.

Distribution: widespread in the Transvaal, southern and eastern Cape Province including the Transkei, and Great Karoo; also in Namaqualand as well as in Mozambique (*T. moggii*), Malawi, Zambia and Tanzania (*T. laxifolia*); excluded from the south western Cape and Natal (Figs 21, 22).

The essential characters of this section are the presence of a large yellow callus on each of the anticus perianth segments, or rarely on the median segment only, and a decided zygomorphy with the posticous perianth segment often widest and concave, thus protecting the stamens and stigmas.

The presence of calli in two species, at that time still under *Gladiolus*, was the reason that A.P. De Candolle (1803) established a new genus, *Montbretia* (the name to commemorate Coquebert-Montbret the younger). This genus was at first recognised by Baker (1877) and Klatt (1863, 1882);

but later, after Bentham had assigned it to the synonymy of *Tritonia* in Bentham and Hooker's *Genera* (1883), Baker (1892, 1896) and Klatt (1895) regarded it as a section or subgenus of *Tritonia*. In the twentieth century Stapf (1924) and Sealy (1939–40) proposed that *Montbretia* be re-established as genus. Phillips (1951) on the other hand, as well as Goldblatt (1976), did not agree with this, and during the present investigation numerous intermediates with small calli or ridges on the anticus perianth segments were found amongst other sections of *Tritonia*; therefore *Montbretia* is here also included with *Tritonia* as a section.

The calli which are often situated on small yellow, red-margined blotches, vary in shape in different species (De Vos, 1982b), and were it not that they are often not readily visible in herbarium material, a better use could be made of this character to distinguish certain species. The only function that can possibly be attributed to the calli is that they narrow the throat of the perianth, thus ensuring that pollinating insects will brush with their backs against the anthers and stigmas. There is no evidence that the calli are nectaries. These are in the septa in the top of the ovary.

Several species, such as *T. watermeyerii*, *T. securigera*, *T. chrysantha*, from the southern and eastern limits of the winter rainfall region, as well as two species from the northern limits of this region (Richtersveld in Namaqualand) are winter rainfall species, sprouting in autumn and flowering in spring and early summer. Another two species, namely *T. florentiae* and *T. karooica*, from the Great Karoo, have retained their winter growing habit and also flower in spring. The remaining five species are from the summer rainfall regions of the eastern Cape and Transvaal, and countries farther north. They sprout in spring or summer. Of these *T. nelsonii*, *T. atrorubens* and *T. drakensbergensis* flower in summer, *T. moggii* from Mozambique in autumn or winter, and *T. laxifolia* in autumn. The last named species has a disjunctive distribution: in the eastern Cape Province and in Central Africa, with apparently a wide interval between these areas.

This section can be subdivided into several groups or subsections. Most of the species are very closely related and have almost similar flowers: somewhat two-lipped with a large posticus perianth segment against which the stamens and style are curved, and large anticus calli. Nine species can be placed in this group, e.g. *T. securigera*, *T. laxifolia*, *T. nelsonii*, *T. watermeyerii*, etc. They are from the southern and eastern Cape, Transvaal and farther north. The two species from the Richtersveld, namely *T. marlothii* and *T. delpierreii*, have somewhat salver-shaped flowers and slightly succulent leaves and form a separate group. The two species from the Great Karoo are very different from each other: *T. florentiae* has an unusual inflorescence; and *T. karooica* has funnel-shaped flowers. Each could be assigned to separate subsections.



FIG. 21

Geographical distribution of *Tritonia*, section *Montbretia*: *T. chrysantha*, *T. florentiae*, *T. parvula*, *T. securigera*, *T. strictifolia*, *T. watermeyerii*.

Formal subsections are, however, not described, as *T. atrorubens* cannot be placed, on account of somewhat inadequate herbarium material.

Section *Montbretia* is not the *Montbretia* of horticulturalists which consists of species of *Crocsmia* and (or) *Crocsmia* hybrids.

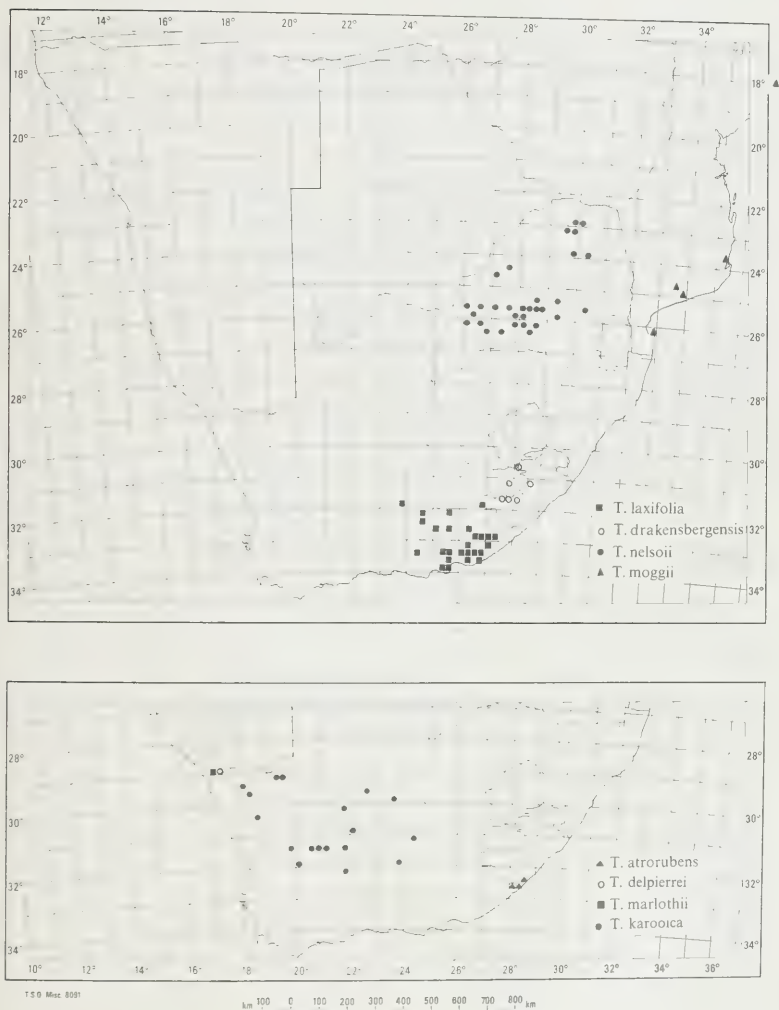


FIG. 22
Geographical distribution of *Tritonia*, section *Montbretia*: *T. atrorubens*, *T. delpierrei*,
T. drakensbergensis, *T. karooica*, *T. laxifolia*, *T. marlothii*, *T. moggii*, *T. nelsonii*.

15. *Tritonia securigera* (Ait.) Ker-Gawl. in Kon. & Sims, Ann. Bot. **1**: 228 (1805); Bak. Handb. Irid. 196 (1892) & in Fl. Cap. **6**: 128 (1896); Klatt in Dur. & Schinz, Consp. Fl. Afr. **5**: 207 (1895).

Gladiolus securiger Ait. Hort. Kew. **1**: 65 (1789); Curtis's bot. Mag. **11** t. 383 (1797). Type: ex Hort. Chelsea, 1778, *s. loc.*, *s. coll.* (BM, lecto-). See below.

Montbretia securigera (Ait.) DC. in Bull. Soc. Philom. **3**: 151 (1803) & in Red. Lil. t. 53 (1804); Klatt in Linnaea **32**: 752 (1863) & in Abh. naturf. Ges. Halle **15**: 359 (1882); Bak. in J. Linn. Soc. **16**: 169 (1877).

Ixia gladiolaris Lam. Encycl. **3**: 341 (1789). Type: Hb. Lam. (P).

I. squalida Thunb. in Hoffm. Phyt. Blätt. **4** (1803) & Fl. Cap. **1**: 244 (1811) hom. illeg., non Ait. Type: HB. Thunberg 996 (UPS).

I. flabellularis Vahl, Enum. Pl. **2**: 67 (1805). Type: Cap. b. Spei, ex herb. Royeni (C, holo-).

I. thunbergii Roem. & Schult. Syst. Veg. **1**: 391 (1817), nom. nov. pro *I. squalida* Thunb. Type as for *I. squalida* Thunb.

Tritonia flava (Ait.) Ker-Gawl. sensu Ker-Gawl. in Bot. Reg. **9** t. 747 (1823); Bak in Fl. Cap. **6**: 128 (1896). (Basionym *Gladiolus flavus* Ait. = *Tritonia* sp. indet.—see SPECIES INSUFFICIENTLY KNOWN p. 412)

Icones: Curtis's bot. Mag. **11** t. 383; Red. Lil. t. 53; an unpublished figure by M. Page in BOL; this work Fig. 23/2.

Type: The type material in BM comprises two sheets, one with two plants, e Hort. Chelsea 1778, without collector or locality, and the other with a single flowering scape, from Cap. b. Spei, without collector or date. These are probably plants or descendants of plants, brought back from the Cape by Masson. The first is chosen as lectotype.

Plants (100–)150–300(–350) mm long. *Corm* subglobose, 10–20 mm diam.; tunic fibres fine or sometimes rather strong, matted, reticulate in the upper part, almost parallel in the lower. *Scape* (100–)150–300(–450) mm long, erect or suberect, simple or with one branch, sometimes with a collar of old leaf bases around the base. *Leaves* 4–7, suberect or rarely spreading, lanceolate or lanceolate-linear, (70–)100–200(–270) × (4–)6–10(–12) mm, acute or acuminate, obscurely veined, with a slightly stronger middle vein, not reaching the spike or sometimes as long as the spike; cauline leaves 1–2,

FIG. 23

Tritonia laxifolia (De Vos 2443): 1a, plant and front view of flower; 1b, dehiscing capsule.

Tritonia securigera (De Vos 2417): 2a, plant and front view of a flower; 2b, outer (left) and inner (right) bract; 2c, flower half in a median longitudinal cut; 2d, dehiscing capsule.



up to ca. 60 mm long. *Spike* erect, rather lax, almost secund, with 5–15 flowers. *Bracts* membranous, papery, ovate, 7–10(–12) mm long, pale with dark veins, brownish towards the top; *outer* 3- or 5-toothed or irregularly toothed, veined; *inner* 2-dentate, 2-veined, sometimes slightly shorter than the outer. *Flowers* suberect and slightly spreading, (28–)30–35(–45) mm long, reddish-orange or apricot, with a yellow throat, or almost wholly yellow (RHS 28B, C, 31B, 26B, 23C, 19B, 21D), with the upper lobe sometimes pale yellow inside. *Perianth tube* tubular in the lower half, funnel-shaped in the upper, (10–)12–15(–20) mm long, slightly curved; *segments* unequal, obtuse, 12–20 mm long, the posticous segment obovate, often slightly concave, (8–)12–15 mm wide; other segments oblong to oblanceolate, spreading, upper laterals 7–11 mm wide, anticus segments 5–8 mm wide, each with a high, and usually wide, callus in the yellow red-margined throat. *Stamens* curved towards the posticous segment; *filaments* 9–12(–15) mm; *anthers* contiguous 5–6 mm long, purple or mauve, reaching halfway or sometimes higher up the perianth lobes; pollen mauve. *Style* slightly bent, 17–20(–25) mm long; *stigmatic branches* 4–5 mm long, often overtopping the anthers. *Capsules* ellipsoid, 7–10 mm long; *seeds* brown, shiny, angled, reticulate-foveate, 1.5–2 mm diam.

Flowering period: September to early December.

Distribution: in the Little Karoo, Langkloof, eastern Karoo and southern Cape coastal districts of Mossel Bay, George and Humansdorp (Fig. 21).

CAPE—3224 (Graaff-Reinet): Kamdebo (-AB), *Dunn* BOL 31758.

—3225 (Somerset East): Prope Middleton (-DD), *Rogers* BOL 12945.

—3226 (Fort Beaufort): 17 km E of Adelaide (-CD), *De Vos* 2573 (STE).

—3321 (Ladismith): 5–10 mls W of Ladismith (-AD), *Rycroft* 3029 (NBG); Foothills of Langeberg N of Herbertsdale (-DD), *Goldblatt* 4155 (MO).

—3322 (Oudtshoorn): Kleine Poort, *Tyson* 3071 (PRE, SAM, K); Eikerkraal betw. Klaarstroom & Prince Albert (-AB), *Leipoldt* BOL 31763; Foot of Swartberg Pass on road to Oudtshoorn (-AC), *Goldblatt* 2958 (MO); Between Cango and DeRust (-AD), *Thorne* SAM 53367; Oudtshoorn (-CA), *Yeoman s.n.*, 17/5/25 (NBG), *Deas* SAM 11639; Ruiterbos (-CC), *Barker* 7677 (NBG); Hills near Zebra (-CD), *Taylor* 850 (NBG); Camfer, *De Vos* 2416 (STE); George, *Marloth* 2455 (PRE); Near George, *Burchell* 6090 (K), *Compton* 13214 (NBG), *Goldblatt* BOL 31762; Near Blanco, *Middlemost* 1785 (BOL, NBG, STE, S); Between Grootbraak River & George, *Fourcade* 4074 (STE); George forest, *Barker* 6858 (NBG); Eseljagsrivier (-DC), *De Vos* 2417 (STE); Eseljagspoort, S end, *Oliver* 3584 (PRE); Betw. Eseljags & Molenrivier, *De Vos* 2418 (STE); 56 km E of Oudtshoorn, *Goldblatt* 2855 (MO); Oudtshoorn to Avontuur, *Goldblatt* 450 (BOL).

—3323 (Willowmore): Modderfontein, distr. Willowmore, *Andreae* 1042 (PRE); Zuurberg at Georgida (-AD), *Fourcade* 4629 (STE); Banks of Wagenboomsrivier near Joubertina (-DD), *Fourcade* 2331 (K).

—3325 (Port Elizabeth): Kommadagga (-BB), *Bayliss* 6085 (PRE, MO, S).

—3421 (Riversdale): Riversdale (-AB), *Bayliss* 2421 (G, not in SAM).

—3422 (Mossel Bay): Brak River (-AA), *Hops* 250 (BOL); Great Brak, slopes above station, *Lewis* 5607 (NBG, STE); Near Mossel Bay, *Bowie* 1 (BM).

Without precise locality: *Thunberg* 996 (UPS); *Ecklon* ex Mont. tab. pr. b. Sp (L) (probably a wrong locality label); *Herb. Royeni* (C).

This is one of the first of the callus-bearing species of *Tritonia* found in South Africa, for which Aiton (1789) coined the appropriate epithet of *securigera* (axe-bearing).

The species is closely related to *T. laxifolia* from which it can best be distinguished by its different flowering period. Other points of difference, often not evident in herbarium material, are the yellow throat of the perianth, usually broader and less high calli, shorter stamens which usually do not reach more than halfway up the perianth segments, and shorter capsules. The two species occupy neighbouring areas in the south eastern Cape Province; towards the eastern extremity of its range *T. securigera* often shows calli that are higher than usual, approximating those of *T. laxifolia*.

T. securigera is also closely related to *T. chrysantha* and *T. parvula*. It differs from the latter in its usually wider, firmer leaves, somewhat larger flowers with slightly longer perianth tube, stamens and style, and with the posticous perianth segment not, or only slightly, concave. It differs from *T. chrysantha* in its shorter perianth tube and usually in flower colouring which varies from a deep reddish-orange or apricot to salmon or various shades of yellow. The yellow-flowered form of *T. securigera* can be distinguished from *T. chrysantha* only by its shorter perianth tube.

The figure identified as *T. flava* in *Botanical Register* 9 t. 747 probably represents the yellow-flowered variation of *T. securigera*. This figure, being that of a plant from a later introduction into Britain, does not correspond with the holotype of *T. flava* (Ait.) Ker-Gawler in BM which, on account of its poor condition, cannot be connected with any species of *Tritonia*. See also under SPECIES INSUFFICIENTLY KNOWN.

A wide variation in size occurs in *T. securigera*. Some collections, e.g. *Fourcade* 4094 and 5054 from the Great Brak and George vicinity, consist of small plants 100–150 mm long with short, spreading leaves and few flowers; whereas specimens from the eastern Karoo, widespread between Fort Beaufort and Pearston, e.g. *De Vos* 2573, as well as *Bayliss* 6085 from Komma-dagga, are up to 350 mm long with bracts to 15 mm and flowers 30–40 mm, with a perianth tube of 15–20 mm, and long leaves with a slightly stronger vein near each edge. As smaller plants were observed amongst the large plants, the latter have not now been described as a distinct variety.

16. *Tritonia chrysantha* Fourcade in Trans. Roy. Soc. S. Afr. 21: 77 (1932). Type: Cape, Uniondale, hills S of Georgida, *Fourcade* 4394 (BOL, holo.; STE, K).

Fig. 24.

Plants (100–)200–300(–500) mm long. *Corm* subglobose to ovoid, 10–20 mm diam.; tunic fibres strong, reticulate, almost parallel and plate-like towards the base. *Scape* (100–)200–300(–500) mm long, erect or slightly bent, simple or with 1–2 branches, often with dried leaf bases 40–100 mm long at the base. *Leaves* 4–7, lanceolate, acute, 50–100(–200) × (2–)5–10 mm, suberect or sometimes spreading, usually not reaching the base of the spike; cauline leaves 1–2, subulate. *Spike* distichous, lax, sometimes with 1–2 branches, with 2–8 flowers. *Bracts* membranous, 6–12 mm long; *outer* 3- or 2-toothed, with obtuse or acute teeth, with reddish-brown veins; *inner* 2-toothed, acute or acuminate, 2-veined, sometimes slightly shorter than the outer. *Flowers* (30–)35–40(–48) mm long, bright yellow (RHS 8B). *Perianth*



FIG. 24

Tritonia chrysantha (De Vos 2419): a, plant and front view of flower; b, outer (left) and inner (right) bract; c, flower half in a median cut; d, capsules.

tube (18–)20–28 mm long, tubular, widening gradually to 6–7 mm diam. in the upper quarter; segments ovate-spathulate, obtuse, (8–)10–15 mm long, the posticous segment 9–12 mm wide, often slightly hooded, the others 5–8 mm wide, spreading, the three lower ones with a large yellow callus up to 5 × 3 mm. Stamens curved towards the posticous segment; filaments 7–10 mm; anthers 4–6 mm long, violet or yellow, reaching halfway or higher up the perianth lobes. Style 20–30(–35) mm; stigmatic branches 3–5 mm long, sometimes overtopping the anthers. Capsules ca. 6 mm long; seeds shiny brown, 2 mm diam. Chromosome number $2n = 22$.

Flowering period: late August to October.

Distribution: chiefly in the Little Karoo and southern and south eastern Great Karoo (Fig. 21).

CAPE—3225 (Somerset East): Zuurberg mts. near Somerset East, Bayliss 7132 (MO).

—3322 (Oudtshoorn): Slopes east of Laudina (-DB), Oliver 3588 (STE, PRE); Between Buffelsdrif & Bassau (-DB), De Vos 2419 (STE).

—3323 (Willowmore): Roodeklip SW of Anthoniesberg (-AD), Taylor 868 (NBG); S of Georgida, Fourcade 4394 (STE, BOL, K); Farm Vaalwater SE of Willowmore (-BC), Thompson 2008 (STE, K); Near Uniondale (-CA), Zinn SAM 65867, Yates PRE 36625; Hoogtes Pass, Potjiesrivier, Acocks 21593 (PRE).

—3324 (Steytlerville): Baviaanskloof (-CA), Bayliss 4954 (NBG, MO).

—3326 (Grahamstown): Near Alicedale (-AC), Bayliss 8047 (STE, MO), Bayliss 6811 (MO); Trappes Valley (-BD), Bayliss 2404 (MO).

—3421 (Riversdale): The Fisheries (-BD), Acocks 21565 (NBG, PRE).

This species is distinguished by bright yellow flowers with a narrow perianth tube about twice the length of the segments and a large yellow callus often on a small pinkish-red blotch, on each of the anticus perianth segments. It is closely related to *T. securigera* and can be confused with the yellow-flowered form of this species, from which it differs in its longer perianth tube.

17. *Tritonia parvula* N.E.Br. in Kew Bull. 1931: 452. Type: Cape, near Oudtshoorn, Muir 4724 (K, holo-).

Plants (80–)150–250(–300) mm long. Corm 5–10 mm diam., ovoid; tunic fibres strong, reticulate in the upper half, almost parallel in the lower. Scape (60–)120–200(–250) mm, slender, curved or flexuose, rarely branched. Leaves 4–7, linear, acuminate, somewhat flaccid, suberect or spreading, sometimes recurved, 80–300 × (0.5–)1–2(–4) mm, often longer than the scape, with a slender middle vein. Spike lax, often flexuose, with (1–)2–6 flowers, rarely with one branch. Bracts membranous, 5–9 mm long, pale brown, with darker veins; outer minutely 3-toothed, darker brown upwards;

inner minutely bidentate. *Flowers* zygomorphic, (18-)22-30 mm long, red-dish-orange to salmon, with a yellow throat. *Perianth tube* tubular in the lower half, funnel-shaped above, 6-10(-13) mm long, widened to ca. 6 mm diam. at the throat; *segments* oblanceolate, obtuse, 9-12(-15) mm long, the posticous segment concave and hooded, often paler inside 6-10(-12) mm wide, the other 4-6 mm long, with a high yellow callus on each anticous segment. *Stamens* curved towards the posticous segment; *filaments* 6-10 mm; *anthers* 4-5 mm long, curved, often violet, reaching below to above the middle of the perianth segments. *Style* (10-)15-20 mm; *stigmatic branches* 2.5-3 mm long, reaching or overtopping the anthers. *Capsules* shortly ellipsoid, ca. 6 mm long.

Flowering period: late September to October (to December).

Distribution: southern districts of the Cape Province from Riversdale to Willowmore Fig. 21).

CAPE—3321 (Ladismith): Seweweekspoort (-AD), *Compton* 7473 (NBG); *Wurts* 1607 (NBG); Klein Swartberg near Hoekoe, *Wurts* 1476 (NBG).

—3322 (Oudtshoorn): Oudtshoorn (-CA), *Barker* 7604 (NBG), SAM 53185, BOL 31776, *Muir* 4724 (K).

—3322 Willowmore): Boskloof, Baviaanskloof (-DA), *Hugo* 1444 (STE); 2.2 mls from Louterwater to Oudtshoorn (-DC), *Marsh* 1406 (PRE, STE).

—3421 (Riversdale): Rock faces at Glen (-AB), *Muir* BOL 31773.

Without precise locality: Oudtshoorn flower show, SAM 9392 partly.

T. parvula is very closely related to, and largely sympatric with, *T. securigera*. It differs from the latter in its more flaccid appearance, its narrow, flaccid, linear leaves, a somewhat flexuose spike that has slightly smaller flowers with smaller floral parts and with the median posticous perianth segment strongly concave and the calli on the lateral anticous segments sometimes reduced in size. *Hugo's* collection no. 1444 in STE, from Baviaanskloof, seems to connect the two species. Here the spike and flowers approximate those of *T. securigera*, but the leaves are only 2 mm wide. *T. parviflora* might perhaps be regarded as a depauperated variety of *T. securigera*.

18. *Tritonia strictifolia* (Klatt) Benth. ex Klatt in Dur. & Schinz, Consp. Fl. Afr. 5: 208 (1895).

Montbretia strictifolia Klatt in Linnaea 32: 753 (1863) & in Abh. naturf. Ges. Halle 15: 359 (1882); Bak. in J. Linn. Soc. 16: 169 (1877). Syntypes: Cape, Albany, auf grasreichen Hügeln bei Grahamstown, *Ecklon & Zeyher* 100 (B, lecto-; SAM, G, S, Z); Uitenhage, Kalkhöhe zw. Zwartkoprivier u. Zondagsrivier, *Ecklon & Zeyher* 260 (B, not seen).

Tritonia laxifolia Benth. ex Bak. var. *strictifolia* (Klatt) Bak. Handb. Irid. 195 (1892) & in Fl. Cap. 6: 127 (1896).

T. parviflora Bak. in Bull. Herb. Boiss. Ser. 2, 1: 865 (1901). Type: Kapkolonie, Ecklon & Zeyher 100 (Z, holo-; SAM, B, G, S).

Plants 150–200(–270) mm long. Corm 10–20 mm diam.; tunic fibres fine, almost parallel in the lower half, reticulate in the upper. Scape 150–200(–270) mm long, slightly flexuose towards the top, often with one branch. Leaves 4–7, linear-lanceolate, usually erect, (40–)60–90 × 2–5 mm, acute or acuminate, drying to a light brown, with a prominent vein near the margins and in the middle, not reaching near the spike; cauline leaf one, ca. 15 mm long. Spike rather lax, often slightly flexuose, somewhat distichous, with 3–5 flowers, often with a 1–2-flowered branch. Bracts membranous, brown, 7–10 mm long; outer striate, 3-toothed; inner bidentate, with acuminate teeth. Flowers zygomorphic, (20–)25–35 mm long, rust-orange or pink. Perianth tube 10–15 mm long, funnel-shaped, widened to ca. 8 mm diam. upwards; segments obtuse, 13–18 × 5–10 mm, with the posticous segment widest, anticus segments with a high, narrow, yellow callus on a yellow mark. Stamens curved towards the posticous segment; filaments 7–10 mm; anthers contiguous, ca. 5 mm long, reaching halfway or higher up the perianth segments. Style 17–20 mm; stigmatic branches 3–4 mm long, reaching or overtopping the anthers.

Flowering period: November.

Distribution: south eastern Cape Province, Grahamstown district (Fig. 21).

CAPE—3326 (Grahamstown): Auf grasreichen Hügeln bei Grahamstown (-BC), Ecklon & Zeyher 100 (SAM), Irid. 100 (B, G, S, Z); Between Grahamstown and Botha's Hill, Hutchinson 1586 (BOL. K); Commonage N of Grahamstown, Barker 6940 (STE); Grahamstown flats, Galpin 386 (PRE); 4 mls NE of Grahamstown, Gillett 2517 (BOL, STE).

Without precise locality: Ecklon s.n. sub *T. squalida* (C); Ex hb. Royen sub *Ixia* (*Morphixia*) *capillaris* B stricta (C).

This species comprises small plants with narrow, erect, linear-lanceolate leaves often less than 100 mm in length and usually less than 5 mm wide; and with few, short-tubed flowers resembling those of *T. securigera* and *T. laxifolia*. The leaves have three prominent veins, two of which are near the margins. The calli on the anticus perianth segments are high and narrow as in *T. laxifolia* and the eastern form of *T. securigera*. The two lateral calli are, however, sometimes reduced in size. Variation occurs in flower colouring which was described as red ("miniata") by Klatt (1863); but later collectors noted the colour as rust-orange or pink.

The species is related to *T. laxifolia* and *T. securigera*, differing in its smaller, erect leaves with their strong submarginal veins, and from the for-

mer also in its different flowering period. As the leaves are so distinctly different and the flowering period different from that of *T. laxifolia* with which Baker (1896) associated it as a variety, *T. strictifolia* is once again raised to specific rank.

In habit *T. strictifolia* resembles *T. lineata* var. *parvifolia* and herbarium specimens can be confused, notwithstanding the difference in flower structure. This variety occurs in the districts of Port Elizabeth and Uitenhage which adjoin the Grahamstown district. Klatt's second syntype, *Ecklon & Zeyher* 260, from Kalkhöhe in the Uitenhage district, could not be found during the present investigation. There is some slight possibility that it may be this small variety of *T. lineata*, as its locality, as well as its seeming preference for chalky ground, is that of the latter.

19. ***Tritonia laxifolia*** (Klatt) Benth. ex Bak. Handb. Irid. 195 (1892) & in Fl. Cap. 6: 126 (1896) excl. var. *strictifolia*; Klatt in Dur. & Schinz, Consp. Fl. Afr. 5: 206 (1895); N.E.Br. in J. Linn. Soc. 48: 47 (1928).

Montbretia laxifolia Klatt in Linnaea 32: 754 (1863) & in Abh. naturf. Ges. Halle 15: 359 (1882); Bak. in Trans. Linn. Soc. 29: 155 & t. 101A (1875) & in J. Linn. Soc. 16: 169 (1877); Stapf in Curtis's bot. Mag. 150 t. 9038 (1928) as *M. laxiflora* (sic), excl. syn. *M. strictifolia*. Syntypes: Cape, C.B.S., *Krebs s.n.*; *Drège* 3489a (K, lecto-; SAM, G, L, MO, S); Locality 103, i.e. Uitenhage, Steenbokvlakte, *Ecklon & Zeyher* Irid. 105 (B, G, SAM, S, MO).

Ixia fenestrata Jacq. sensu Thunb. in Hoffm. Phyt. Blätt. 4 (1803) & in Fl. Cap. 244 (1811); non Jacq. (1789 & 1809).

Tritonia bakeri Klatt in Dur. & Schinz, Consp. Fl. Afr. 5: 203 (1895); non Klatt (1882). Type: German East Afr. 5° 50' S, 30° E, *Speke & Grant s.n.* (K).

T. clusiana A. Worsley in Gard. Chron. 38: 269 (1905). Type: South Africa, said to have come from the Greytown distr., *Worsley s.n.* (K, holo-).

T. bracteata A. Worsley in Gard. Chron 39: 2 (1906). Type as for *T. clusiana*.

Icons: Curtis's bot. Mag. 150 t. 9039; an unpublished drawing by G. J. Lewis (BOL); Trans. Linn. Soc. 29 t. 101A (incorrect, calli not shown); this work Fig. 23/1.

Plants (150–)200–400(–600) mm long. *Corm* subglobose, 10–15 mm diam.; tunic fibres very fine, reticulate in the upper part, subparallel towards the base, often with small basal cormlets. *Scape* 140–400(–600) mm long, erect or suberect, simple or with 1–2 or rarely more branches. *Leaves* 4–7, lanceolate or linear-lanceolate, acute or acuminate, suberect or sometimes spreading, 100–300(–500) × 5–10(–12) mm, with a strong middle vein and

sometimes a slightly stronger lateral vein near each edge, often reaching the base of the spike; cauline leaves 1–2, shorter and narrower. *Spike* somewhat lax, secund, sometimes 1–2-branched, with 6–12 or more flowers. *Bracts* membranous, reddish-brown, often with fine brown stippling towards the top, with wide, brownish, papery margins, 6–12(–18) mm long; *outer* 3-toothed or rarely 5-toothed or subacute, striate, with a stronger median vein ending in a dark, sometimes reduced and short middle tooth; *inner* bidentate, the teeth with dark brown tips, 2-veined, sometimes slightly shorter than the outer. *Flowers* suberect and slightly spreading, (22–)25–32(–35) mm long, bright salmon-pink to pale brick-red (RHS 33C, 34C, D) the cup and sometimes the posticous perianth segment pale inside. *Perianth tube* narrowly tubular in the lower half, widely funnel-shaped in the upper, slightly curved, 12–16 mm long; *segments* unequal in width, obtuse, (10–)12–15 mm long, median posticous segment obovate to subrotund, 8–12 mm wide, suberect, concave and slightly hooded; other segments elliptical, 5–8 mm wide, the three anticus segments with a narrow, curved, yellow or greenish-yellow, callus 3–5 mm high, on a small yellow, red-margined blotch. *Stamens* curved against the posticous perianth segment; *filaments* 12–15 mm long; *anthers* 4–6 mm long, contiguous, reaching to the upper quarter of the posticous segment, mauve or purple; pollen pale. *Style* 18–20(–22) mm long; *stigmatic branches* 2–4 mm long, reaching the anther tips or just above or below them. *Capsules* ellipsoid and somewhat trigonous, erect, up to 15 mm long; *seeds* brown, finely ribbed, ca. 2 mm diam.

Flowering period: (January to) March to May (to July, Central Africa).

Distribution: eastern Cape Province from Uitenhage to East London and eastern and north eastern parts of the Great Karoo, as well as in the Central African states of Malawi, Zambia and Tanzania (Fig. 22).

CAPE—3126 (Queenstown): Mountain side, Queenstown (-DD), *Galpin* 2036 (GRA, PRE, K); Junction farm, Queenstown, *Galpin* 8187 (PRE).

—3224 (Graaff-Reinet): Along Sunday River N of Monkey Ford (-BA), *Burchell* 2867 (K, L); Prope Graaff-Reinet (-BC), *Bolus* 597 (BOL, K), *Bayliss* 4457 (MO); Ad pedes Spandouw Kop, *Francis* 17 (BOL).

—3225 (Somerset East): Cradock (-BA), *Brincker* TM 20243 (PRE), Bot. Hon. 306 (MO); Pearson (-CA), *Palmer s.n.*, Apr. 1962 (PRE); Ad pedis montis Boschberg (-DA), *MacOwan* 275 (K).

—3226 (Fort Beaufort): Adelaide (-CB), *Van Eden* NBG 1444/31 (BOL); Baddaford farm (-DC), *Killick* 871 (PRE); Near top of Koonop Heights, *Schonland* 3709 (PRE); Alice, Fort Hare (-DD), *Goldblatt* 406 (BOL).

—3227 (Stutterheim): Near Fort Cox (-CC), *Sidey* 616 (S); Kingwilliamstown (-CD), *Godfrey* 57 (GRA).

—3324 (Steytlerville): Near Steytlerville (-AD), *Rousseau* 11 (PRE).

—3325 (Port Elizabeth): Locality 103, i.e. Steenboksvlakte (-AD), *Zeyher* 105 (SAM), *Ecklon & Zeyher Irid* 105 (B, G, S, MO); Coerney (-BC), *Schonland* 3249 (GRA); Enon, *Drege* 3489a (K); In collibus prope Uitenhage (-CD), *Schlechter* 2510

(BOL, GRA, G): Elandsrivier catchment basin, *Scharf 1311* (PRE); Addo (-DA/-B), *Brynard 353* (PRE), *Urton 246* (GRA); In der Kloof, Adow, *Drège 3489a* (SAM); Port Elizabeth (-DC), *Meyer PRE 36611*; 15 mls E of Port Elizabeth, *Lewis 4433* (PRE, SAM); Redhouse, *Paterson 1011* (GRA); Mr. Crew's farm, Coega, *De Vos 2442* (STE), *Dahlstrand 665* (PRE).

—3326 (Grahamstown): Grahamstown district, *Bayliss 1227* (B), *Rogers 27741* (STE); Helsőpoort (-AB), *Bayliss 5722* (C, MO); Alicedale (-AC), *Cruden 220* (STE); Ca. 15 mls SW of Grahamstown (-AD), *Lewis SAM 65866* (PRE); 11 mls from Grahamstown on Salem road, *Cheadle 734* (PRE); Grahamstown (-BC), *Daly & Sole 67* (PRE), *Rogers 27741* (GRA); Grahamstown flats, *Britten A60* (GRA); Peddie road 15 mls from Grahamstown (-BD), *Dyer 1382* (GRA, PRE); De Bega valley, Alexandria (-CB), *Galpin 10662* (PRE), *Galpin s.n. BOL 31761*, *Archibald 4118* (PRE); Alexandria, *MacOwan s.n.*, 3/1884 (K), *Theron 259* (PRE); Boesmansrivier valley between Grahamstown and Alexandria, *De Vos 2443* (STE); Bathurst (-DB), *Sidey 3673* (PRE).

—3327 (Peddie): Keiskamma, *Hutton s.n.*, 3/68 (K).

Without precise locality: *Thom. s.n.* (K); *Harvey s.n.* (K).

TANZANIA—Iringa, Sao Hill, *Watermeyer 42* (K); 11 mls SE of Iringa, *Polhill & Paulo 1388* (PRE, B, K, SRGH); Songea distr., *Hay 110* (B, K); Njombe distr., *Leedal 5308* (K); Ufipa distr., *Bullock 2248* (K); Kondoia distr., *Burt 961* (K); German East Africa, *Speke & Grant s.n.* (K).

ZAMBIA—Abercorn distr., Kawimbe, *Richards 8002* (K); Kapatamoyo near Fort Jameson, *Robson 1040* (K, SRGH); Near Lundazi, *Anton-Smith 140* (SRGH).

MALAWI—Mzuzu distr., Vipya Range, *Richards 14458* (K); Mzimba distr., Vipya plateau, *Pawek 8903* (K); 37 mls SW of Mzuzu, *Pawek 8050* (SRGH); Nkhata Bay distr., Vipya mts., *Williamson & Ball 1810* (SRGH); Luwawa, Vipya, *Chapman 1547* (SRGH); Dzalanyama Forest, *Adlard SRGH 135188*; Dedza distr., Ciwan Hill, *Banda 411* (SRGH); Zomba mts., *Whellan 1161* (SRGH); Dedza district, Chongoni Forest Reserve, *Brummit 10152* (K); Mpata mlonde Hill, Dedza distr., *Jackson 2161* (K); Sangono Hill, *Adlard 238A* (K).

Herbarium material of this species from Central East Africa is indistinguishable from the eastern Cape Province material. Baker (1875) also considered this to be the case, as he described the only Central African collection then known, which had been brought back by Speke and Grant's expedition of 1860, as *Montbretia laxifolia* Klatt. He did not indicate the presence of calli either in his quite extensive description or in the accompanying figure. However, the specimen cited, preserved in the Kew herbarium, distinctly shows high calli on the perianth. As Baker had omitted to indicate calli, Klatt thought these Central African plants to be a different species and in 1895 he named it *T. bakeri*, which is a later homonym.

T. laxifolia and the closely related *T. securigera* are a vicarious species pair occupying neighbouring areas in the Cape Province. They resemble each other extensively and are best distinguished in herbaria by their different flowering periods, *T. laxifolia* being the only autumn flowering species of the southern Cape Province. The Cape *T. laxifolia* also differs from *T. securigera* in its slightly smaller flowers showing a cup whitish inside with slender dark lines, higher and narrower, almost peg-like, calli, and anthers reaching

slightly higher up the perianth; also in its longer, ellipsoid, erect capsules and its usually longer, somewhat more flaccid leaves, as well as in its more eastern distribution in the Cape Province.

It differs from *T. nelsonii* of the Transvaal in its usually shorter and wider leaves with less prominent, more widely spaced veins, in its perianth tube which is narrowly tubular in the lower half and in its longer, ellipsoid capsules. Three collections from the Central Region of Malawi in the Kew herbarium, namely *Brummit 10152* and *Jackson 2161*, both from the Dedza district, and *Adlard 238A* from Sangono Hill, have narrower leaves resembling *T. nelsonii* in this feature. The first-mentioned was found on rocky slopes and the second in very shallow soil overlying rocks. These habitats may perhaps have contributed to their narrower leaves.

20. *Tritonia watermeyeri* L. Bol. in Ann. Bol. Herb. 4: 44 (1926). Type: Cape, allegedly Vanrhynsdorp. *Watermeyer BOL 18050* (BOL, holo-).

Montbretia watermeyeri (L.Bol.) Sealy in Curtis's bot. Mag. 174 t. 428 (1963); Pike in Gard. Chron. 152: 335 (1962).

Icones: Curtis's bot. Mag. 174 t. 428; a coloured figure by M. Page in BOL; this work **Fig. 25**.

Plants (100–)200–300 mm long. *Corm* ovoid, 7–15 mm diam.; tunic fibres fine to strong, reticulate. *Scape* (60–)120–300 mm long, erect or somewhat flexuose, with old leaf bases up to 80 mm long around its base. *Leaves* 3–7, linear-lanceolate, acute, 50–125(–150) × 2–8 mm, suberect or spreading, with strongly undulate margins, sometimes spirally twisted, with a slender middle vein. *Spike* simple, distichous, lax, with 2–6 flowers, rarely reduced to one. *Bracts* membranous, ovate, concave, 6–9 mm long, brown and minutely stippled in the upper part, often purplish in the lower; *outer* 3-toothed or irregularly toothed, with purplish veins; *inner* bidentate, 2-veined, with wide, pale, membranous margins. *Flowers* almost 2-lipped, (25–)30–40 mm long, faintly fragrant, burnt orange or pinkish-orange (RHS 31A), the upper perianth segments often pale salmon or buff-coloured inside, the lower segments with a red-margined yellow zone in the throat. *Perianth tube* tubular in the lower 3–7 mm, widened to ca. 7 mm diam. at the top, 10–16 mm long; *segments* unequal, obtuse, median posticous segment obovate, erect, concave, 15–22 × (8–)12–15 mm, lateral posticous segments spreading, oblong, 15–18 × 7–10 mm, anticous segments oblanceolate, deflexed just above the base, 11–14 × 5–9 mm, each with a yellow truncate callus 3–4 mm high. *Stamens* curved against the posticous perianth segment; *filaments* 12–18 mm; *anthers* 4–5 mm long, straight or curved, contiguous, violet or mauve; pollen pale. *Style* 17–25 mm; *stigmatic branches* 3–4 mm, as high as the anthers or just overtopping them. *Capsules* obovoid-

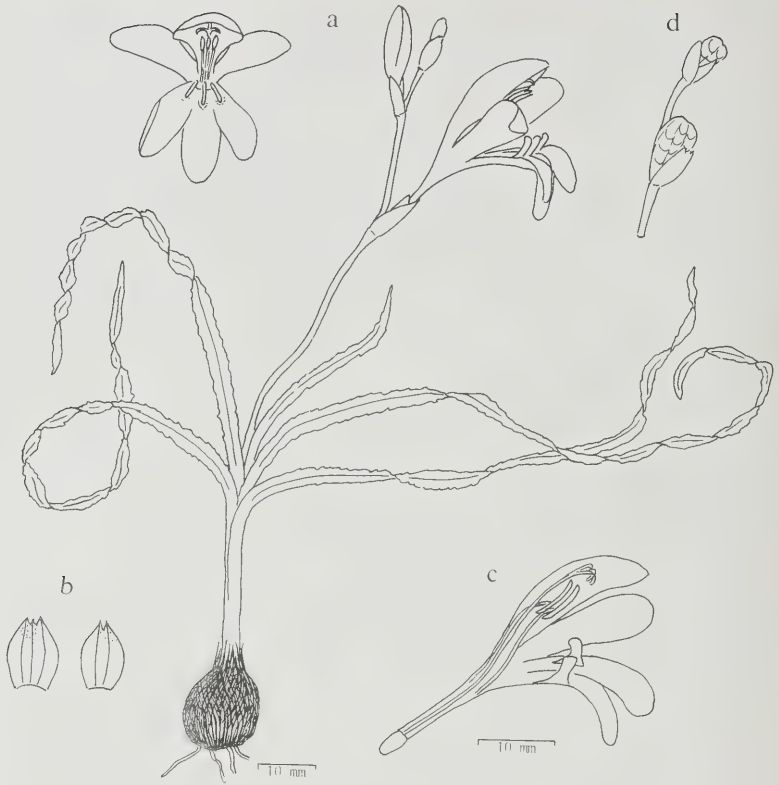


FIG. 25

Tritonia watermeyerii (Malan 112): a, plant and front view of flower; b, outer (left) and inner (right) bract; c, flower half in a median cut; d, capsule.

trigonus, ca. 10 mm long; *seeds* round, brown, minutely reticulate-colliculate, 1,5 mm diam.

Flowering period: August to October.

Distribution: in a small area hardly 60 km in diameter in the Little Karoo east of Montagu, to Barrydale (Fig. 21). The Vanrhynsdorp locality is probably incorrect.

CAPE— 3320 (Montagu): Allemorgens (-CB), *Malan 112* (NBG, STE); 5,5 mls from Montagu towards Ladismith via Kareevlakte (-CC), *Barnard BOL 24788*, SAM 68461; 10 mls from Montagu towards Ladismith (-CD), *Hurley & Neil BOL 20177*,

Lewis BOL 21648 (BOL, PRE); Kleinvlakte near Barrydale (-DC), Van Breda 4379 (PRE, K).

Without precise locality: Ex hort. Barnard, NBG 10/67; "Probably sent by Watermeyer from Vanrhynsdorp", BOL 18050.

T. watermeyeri consists of small plants with flowers more or less resembling those of *T. securigera*, but differing in the perianth having a somewhat more two-lipped appearance. The distinctive character of *T. watermeyeri* is its rather flaccid, often spirally twisted leaves which have undulate margins.

The species is not closely related to *T. tugwelliae* or to *T. undulata* both of which have leaves with undulate margins, but have flowers without calli. These therefore belong to other sections of the genus.

21. *Tritonia drakensbergensis* De Vos, sp. nov.

Caulis 250–300(–500) mm longus. *Folia* 4–5, linearia, acuminata, erecta, 150–250(–300) × 1,5–3(–4) mm, nervo valido in medio et prope margines praedita. *Spica* subsecunda, floribus (2–)3–7. *Bractae* fere chartaceae, 7–11 mm longae, cinnamomeae; bractea exterior subobtusata vel irregulariter dentata vel 3-dentata, nervo medio prominenti; interior basin versus pallida, binervata, bidentata, dentibus acuminatis, marginibus latis chartaceis. *Flores* zygomorphae, (22–)25–32 mm longi, miniati. *Tubus perianthii* late infundibularis, 8–10 mm longus, brevior segmentis; *segmenta* longitudine subaequalia, 15–20 × ca. 5–8 mm, segmento postico parum latiore, segmentis anticis tribus in fauce callo flavo subtriangulari praeditis. *Stamina* segmentum posticum versus posita; *filamenta* ca. 9–12 mm longa; *antherae* 5–6 mm longae, contiguae, infra vel supra medium segmentorum attingentes. *Stylus* 14–18 mm longus, ramis stigmaticis ad vel supra apices antherarum attingentibus.

Type: Cape, Transkei. Little Bush, Cala, 4 000', *Pegler 1699* (BOL, holo-).

Plants 250–300(–500) mm long. *Corm* not seen. *Scape* 250–300(–450) mm long, simple, erect or slightly curved. *Leaves* 4–5, linear, acuminate, rather rigid, erect, 150–250(–300) × 1,5–3(–4) mm, with a strong middle vein and a prominent vein near each edge (dried state), almost reaching the base of the spike. *Spike* subsecund, lax, with (2–)3–7 flowers. *Bracts* almost papery, golden-brown, 7–11 mm long; *outer* subobtusate or irregularly toothed or 3-toothed, with a prominent median vein; *inner* pale towards the base, bidentate, 2-veined, with acuminate teeth and wide papery margins. *Flowers* zygomorphic, (22–)25–32 mm long, red or pinky-scarlet. *Perianth tube* widely funnel-shaped, 8–10 mm long, shorter than the segments; *segments* subequal in length, 15–20 × ca. 5–8 mm, with the posticous segment widest, and the three anticous segments with an almost triangular yellow cal-

lus in the throat. *Stamens* and *style* curved towards the posticous segment; *filaments* ca. 9–12 mm long; *anthers* contiguous, 5–6 mm long, curved, reaching less than, to more than halfway up the perianth segments. *Style* 14–18 mm; *stigmatic branches* 2,5 mm long, at or above the anther tips. *Capsules* not seen.

Flowering period: January to early March.

Distribution: on the southern parts of the Drakensberg range in the north eastern Cape Province and Transkei, at altitudes of 1 100 to 2 300 m (Fig. 22).

TRANSKEI—3127 (Lady Frere): In monte Kwenkwe in ditone Maclear (-DA), *H. Bolus s.n.*, Jan. 1896 (BOL); Little Bush, Cala, *Pegler 1699* (BOL).

—3128 (Umtata): Drakensberg, on Tsitsu footpath, distr. Maclear, *Galpin 6849* (BOL, GRA, PRE, K); Engcobo Mountain (-CA), *Flanagan 2659* (BOL).

CAPE—3028 (Matatiele): Naudésnek (-CA), *Marais 1374* (PRE).

—3127 (Lady Frere): Mountain 2,5 mls NE of Barkley Pass (-BB), *Nordenstam 2009* (S, PRE).

This species is distinguished by red (Galpin) or pinkish-scarlet (Nordenstam) flowers with a wide funnel-shaped perianth tube about half the length of the segments and with a yellow callus on each of the three antiscous segments; and by its long, linear, rather rigid erect leaves with three prominent veins, two of which are near the leaf edges.

It is closely related to the *laxifolia* – *nelsonii* – *strictifolia* complex, resembling the narrow-leaved specimens of *T. nelsonii* in habit. It differs from all three species of the complex in its shorter perianth tube; from *T. laxifolia* and *T. nelsonii* also in its leaves with prominent near-marginal veins and flowers with shorter calli; and from *T. strictifolia* in its much longer, linear leaves and different flowering period.

22. ***Tritonia nelsonii*** Bak. Handb. Irid. 195 (1892) & in Fl. Cap. 6: 127 (1896); Verdoorn, in Flow. Pl. Afr. 33 pl. 1315 (1959). Type: Transvaal, Houtbosberg mountain summit, *Nelson 440* (K, holo-; PRE, iso-).

T. petrophila Bak. in Bull. Herb. Boiss. Ser. 2, 4: 1004 (1904). Type: Transvaal, Granitfelsen bei Modderfontein, *Conrath 585* (Z, holo-; K).

Icon.: Flow. Pl. Afr. 33 pl. 1315; Letty pl. 38 (1962).

Plants (250–)500–900 mm long. *Corm* 15–30 mm diam., ovoid; tunic fibres fine, reticulate in the upper half, parallel in the lower. *Scape* (250–)500–900 mm long, slender, simple or with 1–2 branches. *Leaves* 4–8, suberect or slightly spreading, linear, acuminate, firm, striate, (200–)450–900 × 1,5–4(–6) mm, reaching from below to sometimes above the spike; cauline leaves 1–2, slightly shorter. *Spike* somewhat lax, almost secund, often 1–2-branched, with 5–12 or more suberect flowers. *Bracts* membranous but

greenish at the base at first, brown or minutely brown-striped in the upper half and along the edges, (8–)10–15 mm long; *outer* 3-toothed or acute, striate, with a stronger median vein; *inner* bidentate, 2-veined, shorter than the outer. *Flowers* (22–)25–35(–38) mm long, light flame to bright orange-red or bright red, with a high greenish-yellow callus on each anticus perianth segment. *Perianth tube* funnel-shaped, (10–)14–18 mm long, equal to or slightly longer or rarely shorter than the segments; *segments* unequal, oblanceolate, obtuse, (10–)12–17 × 5–10 mm, the posticus segment slightly hooded, to 10 mm wide, others narrower, spreading or recurved, the three anticus segments with a high greenish-yellow callus on a red-margined blotch, and with a pale dorsal median band. *Stamens* curved against the posticus segment; *filaments* 12–14 mm long, white; *anthers* 5–6 mm long, contiguous, with purple lateral lines, reaching the middle or higher up the perianth segments; pollen pale yellow. *Style* 17–25 mm, white; *stigmatic branches* 2–3 mm long, rarely overtopping the anthers. *Capsules* subglobose to shortly ellipsoid, membranous, 7–10 mm long; *seeds* shiny black, finely foveolate-reticulate, 2 mm diam.

Flowering period: (December to) February to March (to June).

Distribution: northern Transvaal and throughout the Highveld of Transvaal (Fig. 22).

TRANSVAAL—2229 (Waterpoort): Hangklip–Louis Trichardt (-DD), *Bremekamp & Schweickerdt* TM 29855 (PRE); Soutpansberg, Dr. Bird's farm, *Meeuse* 9785 (PRE, SRGH, S).

—2230 (Messina): Entabeni. Laastgevonden (-CC), *Koker* 22 (PRE).

—2329 (Pietersburg): Happy Rest (-BA), *Gerstner* 6103 (PRE); Louis Trichardt (-BB), *Breyer* 19491 (PRE); Houtbosberg (-DD), *Schlechter* 4408 (GRA, PRE); Near Haenertsburg (-DD), *Prosser* 1918 (PRE), *Codd* 9439 (PRE, K).

—2330 (Tzaneen): Broederstroom. Letaba (-CD), *Leighton* 3215 (PRE).

—2427 (Thabazimbi): Farm Groothoek, western extremity of Waterberg (-BC), *Codd* 3988 (PRE); Witpoortjie Falls (-CA), *Davey* 59 (NU).

—2526 (Zeerust): Zeerust (-CA), *Jenkins* TM 11665 (PRE); Kraalkop (-CD), *De Wit* 957 (PRE); Swarttruggens (-DA), *Fouche* PRE 36618.

—2527 (Rustenburg): Rustenburg (-CA), *Rogers* 23436 (K); Farm Rainhill near Rustenburg, *Codd* 1080 (PRE); Hennops River (-DA), *Repton* 496 (PRE); Pelindaba (-DD), *Strey* 3046 (PRE); Uitkomst, Rustenburg, *Coetzee* 724 (PRE).

—2528 (Pretoria): Kameeldrift road 35 mls NE of Pretoria (-BC), *Repton* 3713 (PRE); Lynwood (-CA), *Marsh* PRE 28583 (K), *Verdoorn* 2416 (PRE); Onderstepoort (-CA), *Pole Evans* 429 (PRE); Near Onderstepoort, *Meeuse* 9242 (SRGH); Near Silverton (-CB), *Repton* 382 (PRE); Fountains (-CC), *Munro* PRE 57229, *Verdoorn* 723 (PRE); Premier Mine (-DA), *Rogers* 25369 (PRE); Renosterkop, Bronkhorstspuit district (-DB), *Young* 2149 (PRE, K).

—2529 (Witbank): Loskopdam, Nooigedagt (-AD), *Theron* 1212 (PRE); Middelburg (-CD), *King s.n.* (C).

—2530 (Lydenburg): Waterval Boven (-CB), *Taylor* 1967 (PRE).

—2626 (Klerksdorp): Lichtenburg (-AA), *Jenkins* TM 11478 (PRE); 15 mls NW of

Ventersdorp (-BA), *Codd* 2660 (PRE), *Sidey* 97 (S); Goedgedacht, Ventersdorp (-BD), *Sutton* 567 (PRE).

—2627 (Potchefstroom): 6 mls N of Fochville (-AD), *Dahlstrand* 869 (C); Near Kruerdorp (-BB), *Meeuse* 9060 (L); Little Falls, Roodepoort Ridge (-BB), *Mogg* 20233 (PRE).

—2628 (Johannesburg): Modderfontein (-AA), *Conrath* 585 (K, Z); Near Johannesburg, *Robinson* 57 (NU), *Tucker s.n.* (BOL), *Rogers* 19234 (NH); Weltevreden 10 mls NW of Johannesburg, *Mogg* 22674A (PRE); Zoo Kopjes, *Moss* 8604 (BM, K, PRE); Heidelberg (-AD), *Leenderts* 1024 (BOL), *Burt-Davy* 3098 (PRE), *Strey* 3065 (PRE); Heidelberg Kloof (-AD), *Mogg* 20500 (PRE); Suikerbosrand Nature Reserve (-AD/-CA), *Kroon* 189 (PRE), *Bredenkamp* 441 (PRE).

Without precise locality: Bechuanaland, *Pole-Evans & Ehrens* 1915 (K, SRGH).

This species is closely related to *T. laxifolia*, differing from this in its funnel-shaped perianth tube which widens from close to its base, and in its longer, narrower, linear leaves narrowing gradually to an acuminate tip. The veins are closely spaced and the leaves appear striate in the dried condition. Leaves in shade are less striate. The calli on the anticus perianth segments resemble those of *T. laxifolia*.

Two growth forms occur which were formerly treated as distinct species. In moister regions the plants are somewhat lax with fewer and larger flowers; in dryer areas they are more erect and have smaller flowers (Verdoorn, 1959).

23. *Tritonia atrorubens* (N.E.Br.) L. Bol in J. Bot. Lond. **67**: 133 (1929).

Gladiolus atrorubens N.E.Br. in Kew Bull. **1914**: 135 (1914). Type: Transkei, Kentani, near Manubi, *Saxton* 13 (K, holo-).

T. flanaganii L. Bol. in Ann. Bol. Herb. **2**: 161 (1918). Syntypes: Cape, near Impetu between Komga & Kei Mouth, *Flanagan* 55 (BOL, lecto-); Transkei, flats near Kentani, *Pegler* 392 (BOL, GRA).

Plants 300–600 mm long. *Corm* globose, 10 mm diam.; tunic fibres reticulate in upper half, parallel towards the base. *Scape* 300–600 mm long, erect, slender, simple. *Leaves* 3–6, linear, erect, acuminate, striate with three or more strong veins, 150–400 × (1–)2–5 mm, reaching or almost reaching the base of the spike; cauline leaves 2–4, 100–200 mm long, subulate. *Spike* somewhat secund, rather lax, with 2–9 flowers. *Bracts* membranous, 8–10 mm long, brown in the upper half; *outer* acute or acuminate or irregularly toothed, veined, the median vein brown upwards; *inner* slightly shorter, bidentate, 2-veined, with wide, pale, subhyaline margins. *Flowers* obliquely funnel-shaped, 25–30 mm long, dark red, drying to a blackish purple-red. *Perianth tube* 15–17 mm long, funnel-shaped, almost straight, 1.5 to almost 2 times the length of the segments; *segments* subequal, oblong, obtuse, 8–12 × 4–8 mm, the posticus segment wider than the others, the

anticous segments each with a high callus, with that on the median segment larger than on the lateral ones and yellow. *Filaments* 10–11 mm, reddish; *anthers* 5–7 mm long, dark, reaching more than halfway up the perianth segments. *Style* 18 mm, reddish; *stigmatic branches* 3–4 mm long, reaching the anther tips.

Flowering period: December to January.

Distribution: on a small area hardly 50 km in extent, west and east of the Cape–Transkeian border, at low altitude (Fig. 22).

CAPE–TRANSKEI—3228 (Butterworth): Kentani, near Manubi (-BC), Saxton 13 (K); Near Mpetu (-CA), Flanagan 55 (Bol, PRE); Near Kentani (-CB), Pegler 392 (BOL, GRA, PRE).

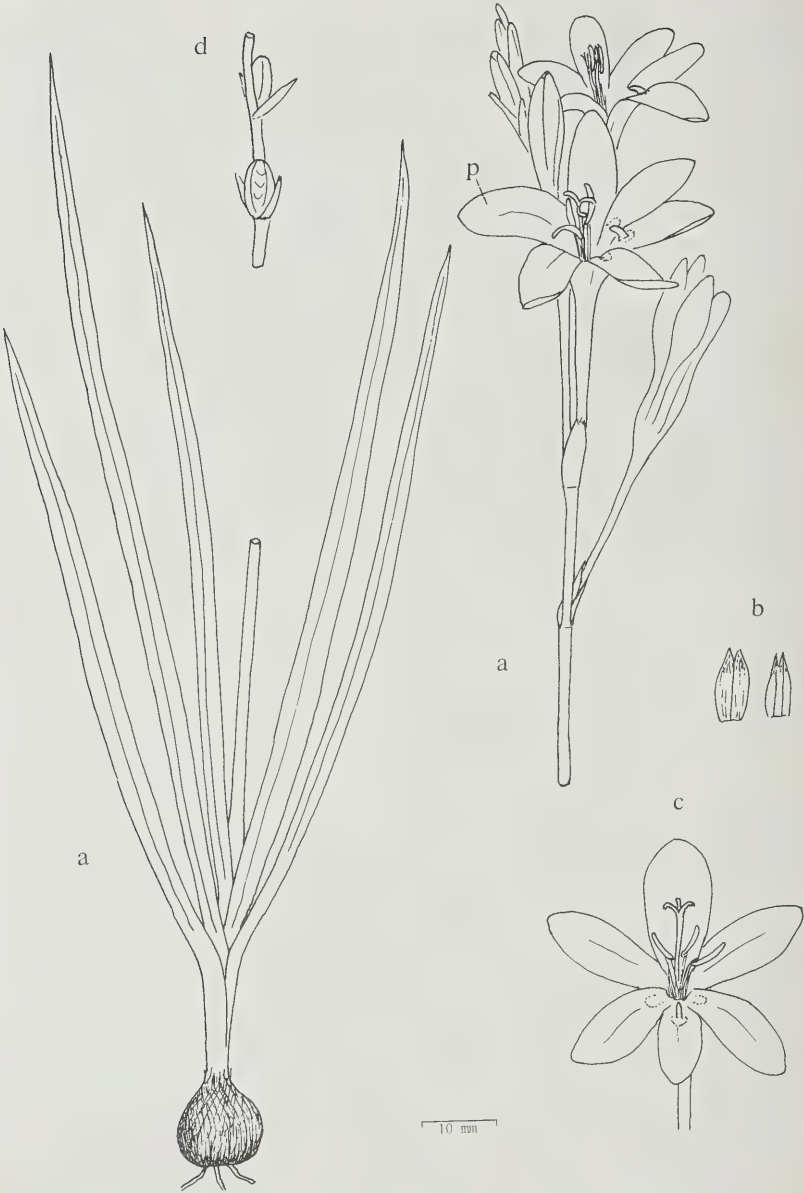
Without precise locality: Marloth 8624 (PRE); Transkeian Country, Bowker 207 (K).

This rare species, found only a few times near the southern part of the Cape–Transkeian border, is distinguished by its long, narrow, linear leaves with a structure almost like that of *T. Bakeri*, by its outer bracts often with acute or acuminate tip, and its dark red flowers which, on drying out, become reddish-black, and which have a perianth tube longer than the segments and calli on the lower segments. The callus on the median anticous segment is yellow and larger than the lateral ones which seem to be dark in colour (red?).

24. *Tritonia moggii* Oberm. in *Kirkia* 3: 24 (1963). Type: Mozambique, Inhaca Island, Ridge Woodland SW of Saco Bay, Mogg 27315 (PRE, holo-; J, SRGH).

Icones: Unpublished, by M. Walgate, in BOL; this work Fig. 26.

Plants (200–)300–500 mm long. *Corm* 10–15 mm diam., globose, sometimes with small cormlets at the ends of 20–30 mm long stolons; tunic fibres fine, elongated-reticulate. *Scape* erect, simple or with 1–3 branches, (200–)300–500 mm long. *Leaves* 6–9, linear-lanceolate, acuminate, soft textured, 150–400(–500) × 4–8(–11) mm, sometimes overtopping the spike, with a prominent middle vein and a prominent lateral vein almost on each leaf edge; cauline leaves shorter and narrower. *Spike* almost secund, lax, simple or few-branched, with 8–10 or more flowers. *Bracts* membranous, papery, 6–12(–15) mm long, brown or reddish-brown in the upper half, with acuminate teeth; *outer* finely veined, acute or 2–3-toothed, with the median tooth often reduced; *inner* bidentate, 2-veined, equal to or slightly shorter than the outer. *Flowers* (40–)45–55 mm long, orange-pink or salmon-pink, with a yellow, red-margined blotch on the three anticous perianth segments.



Perianth tube (24–)30–35(–40) mm long, narrowly tubular for most of its length, widened slightly near the top; *segments* oblong-lanceolate, obtuse (12–)15–22 × 6–9 mm, the median posticous segment slightly wider, the median anticous, and sometimes also one or both lateral anticous segments with a yellow callus. *Filaments* 12–16 mm; *anthers* 6–7 mm long, curved, reaching halfway or higher up the perianth segments. *Style* 33–40 mm; *stigmatic branches* ca. 4 mm long, reaching or overtopping the anthers. *Capsules* ellipsoid or turbinate, membranous, 8–15 mm long; *seeds* round, shiny black, finely reticulate-foveate, ca. 2 mm diam.

Flowering period: April to July, rarely to October.

Distribution: Mozambique, coastal regions and Inhaca Island, as well as in the inland district of Gaza (Fig. 22).

MOZAMBIQUE—Gaza, between Manjacaze & the Coolelo monument, *Lemos & Balsinhas* 115 (PRE); Masiene, *Van Dam* PRE 58376, TM 25358 (PRE); Chibuto, 8 km depois de Maniquenique, *Lemos & Balsinhas* 138 (PRE); Maniquenique Expt. Estação, *Barbosa & De Lemos* 7599 (SRGH); Chicumbane, *Junod* 355 (PRE); Sul do Save, *Pedro & Pedrogao* 1331 (PRE, K); Quelimane, *Sim* 20507 (PRE); Inhambane, *Gomes & Sousa* 1876 (K); Inhaca Island, *Barbosa* 7630 (PRE, K), *Mogg* 27315 (PRE, SRGH), *Weintraub* J20439 (BOL, SRGH), *Hancock* J28015 (PRE); 100 mls NW of Lorenzo Marques (Maputo), *Debenah* s.n. (STE).

This species is readily distinguished by its somewhat zygomorphic flowers with a perianth tube considerably longer than the segments and usually a single callus, and by its leaves that have a prominent vein almost on each leaf margin. It stands nearest *T. laxifolia* and *T. nelsonii* which have a shorter perianth tube and three calli. Several collections seem to connect the species with *T. laxifolia*, e.g., *Van Dam* s.n. (PRE 58376), *Lemos & Balsinhas* 138 (PRE) and *Barbosa & De Lemos* 7599 (SRGH). These show a small callus also on one or both lateral anticous perianth segments. These plants have perhaps incorporated some genes of *T. laxifolia*. They are from the Gaza district of Mozambique which is near the border with Malawi where *T. laxifolia* occurs.

Some of the flowers of the Pedro & Pedrogao collection no. 1331 are only 35 mm long with a perianth tube of 18 mm.

25. *Tritonia delpierrei* De Vos, sp. nov.

Fig. 27.

Plantae 230–350 mm longae. *Cormus* ovoideus, 12–25 mm diam., fibris tunicae validis, elongato-reticulatis, basin versus subparallelis. *Caulis* rigidulus, aliquantum flexuosus, suberectus, 230–350 mm longus, base collo folio-

FIG. 26

Tritonia moggii (from a drawing by M. Walgate in BOL): a, plant; b, outer (left) and inner (right) bract; c, flower, front view; d, capsules; p, posticous perianth segment.

rum veterum circumnixa, 1-3-ramosus. *Folia* 3-5, linearia, acuminata, subsucculenta, $120-300 \times 2-3(-4)$ mm, suberecta vel leviter patula, subglaucula. *Spica* laxa, subsecunda vel interdum subdisticha, ramo principali 5-9-florenti. *Bractee* in dimidio superiore membranaceae, minute sphacelatae, apicibus brunneis, in dimidio inferiore viridulae, 5-10 mm longae; *bractea exterior* minute 2-3-dentata vel subacuta vel subobtusata; *interior* interdum parum brevior quam exterior, bidentata, binervis. *Flores* subzygomorphi, in medio diei fere hypocrateriformes, 22-25(-28) mm longi, eburnei et flavidi, leviter fragrant. *Tubus perianthii* tubularis, 12-18 mm longus, 1,5-2-plo longior quam segmenta, in dimidio superiore gradatum dilatatus ad 2 mm diam.; *segmenta* 8-10(-12) mm longa, patentia, obtusa, segmentis posticis ellipticis, eburneis, 3-5 mm latis, segmentis anticis oblanceolatis, flavidis, 3-4 mm latis, in quoque callo flavido ad 1 mm alto. *Stamina et stylus* parum segmentum posticum versus positi, eburnei; *filamenta* 5-7 mm longa; *antherae* contiguae, 3-5 mm longae, supra dimidium segmentorum attingentes. *Stylus* 18-25 mm longus, ramis stigmaticis 1,5-2 mm longis, supra apices antherarum attingentibus. *Capsulae* subrotundo-trilobatae, 5-10 mm longae, seminibus protuberantibus, globosis, brunneis, minute reticulatis, 2 mm diam.

Type: Cape, southern Richtersveld, top Helskloof, *De Vos* 2462 (STE, holo-).

Plants 230-350 mm long. *Corm* ovoid, 12-25 mm diam.; tunic fibres strong, elongate-reticulate, almost parallel towards the base. *Scape* rather rigid, slightly flexuose, suberect, 230-350 mm long, with a collar of old leaf bases up to 60 mm long around the base, 1-3-branched, the branches somewhat divergent at their bases, then ascending. *Leaves* 3-5, linear, acuminate, slightly succulent, $120-300 \times 2-3(-4)$ mm, suberect or slightly spreading, lightly glaucous, with a strong middle vein or sometimes two strong veins; cauline leaves 1-3, 10-60 mm long. *Spike* lax, subsecund or sometimes subdistichous, with 5-9 flowers on the main branch. *Bracts* membranous and minutely sphacelate in the upper half, with brown tips, greenish in the lower half, 5-10 mm long; *outer* minutely 2-3-dentate, or shortly subacute or subobtusata; *inner* sometimes slightly shorter than the outer, 2-veined, 2-dentate with acuminate teeth. *Flowers* slightly zygomorphic, sometimes inverted, almost salver-shaped in the middle of the day with spreading segments, 22-25(-28) mm long, cream and pale yellow, sometimes faintly flushed with purplish-pink on drying, faintly fragrant. *Perianth tube* tubular, 12-18 mm long, 1,5-2 times longer than the segments, gradually widened in the upper half to 2 mm diam.; *segments* (8-10) 10-12 mm long, spreading, obtuse, posticous segments elliptical, cream, 3-5 mm wide; anticous segments oblanceolate, pale yellow, 3-4 mm wide, each with a small yellow callus up to 1 mm high on the lower half. *Stamens* and *style* placed nearer the post-



FIG. 27

Tritonia delpierrei (De Vos 2462): 1a, plant; 1b, outer (left) and inner (right) bract; 1c, flower half in a median longitudinal cut; 1d, capsules.
Tritonia marlothii (from a drawing of Marloth 12296 in BOL): 2, flower.

cous side of the flower, cream; *filaments* 5–7 mm long, inserted near the top of the perianth tube; *anthers* contiguous, 3–5 mm long, reaching above the middle of the perianth segments, with pale yellow pollen. *Style* 18–25 mm; *stigmatic branches* 1.5–2 mm long, slightly expanded at their tips, overtopping the anthers. *Capsules* subrotund-trilobed, 5–10 mm long, with bulging seeds; *seeds* globose, brown, finely reticulate, 2 mm diam. *Chromosome number* $2n = 20$ (f. Goldblatt).

Flowering period: late July to early October, probably depending on the beginning of the rainy season.

Distribution: southern Richtersveld, Namaqualand (Fig. 22).

CAPE—2817 (Vioolsdrif): Helskloof, between Stinkfontein and Orange River (-CD), *Delpierre s.n.*, Sept. 1977 (MO); Top Helskloof, between Modderdrif and Eksteensfontein, *Delpierre s.n.* NBG 118049; Cultivated from seed, *Goldblatt 4984* (MO); Top Helskloof, *De Vos 2453* (STE); Cultivated from corms, *De Vos 2462* (STE).

The range of this new species, as well as that of *T. marlothii*, is far distant from other species of *Tritonia*, their nearest neighbours being *T. karooica* and *T. kamisbergensis*. Possibly *T. delpierrei* stands nearest *T. karooica* which also has yellow, only slightly zygomorphic flowers with a perianth tube longer than the segments and calli on the lower segments, as well as capsules with large, bulging seeds. They differ, however, in their general habit, *T. delpierrei* being a more slender plant with narrower, more erect, slightly succulent leaves and paler flowers which become almost salver-shaped in the middle of a hot day and which have smaller, spreading, but not reflexed, segments. In late afternoon the flowers close somewhat, the three lower segments becoming grouped closer together. This gives the flowers a somewhat two-lipped appearance, more or less resembling other species of section *Montbretia*.

The species was discovered by Prof. G. R. Delpierre, whence the name. It seems to be quite common in the southern part of the Richtersveld towards and at the top of Helskloof.

26. *Tritonia marlothii* De Vos, sp. nov.

Fig. 27.

T. delpierrei affinis, foliis et habitu similaribus; differt imprimis floribus et stylo longioribus et tubo perianthii 3–4-plo longiore quam segmentis.

Type: Cape, Richtersveld, *Marloth 12296* (BOL, holo-; PRE).

Plants 200–350 mm long. *Corm* not seen. *Scape* rather rigid, slightly flexuose, suberect, 200–350 mm long, 2–3-branched. *Leaves* 4–5, linear, acumi-

nate, slightly succulent, $100\text{--}240 \times 1.5\text{--}3(-4)$ mm, with one or two prominent veins; cauline leaves 1–2, 30–50 mm long. *Spike* distichous, rather lax, with 6–12 flowers on the main branch. *Bracts* membranous, almost papery and finely sphacelate in the upper half, with dark brown tips, 7–10 mm long; *outer* obtuse or minutely 2–3-toothed; *inner* bidentate with short acuminate teeth. *Flowers* slightly zygomorphic, somewhat salver-shaped, 35–45 mm long, apparently pink. *Perianth tube* tubular, slightly curved, 28–35 mm long, 3–4 times the length of the segments, gradually widened in the upper half to 2 mm diam.; *segments* oblanceolate or oblong, obtuse, spreading, $8\text{--}10 \times 2.5\text{--}4$ mm, with a small yellow callus ca. 1 mm high on the lower half of each anticostal segment. *Filaments* 6–8 mm long; inserted near the top of the perianth tube; *anthers* contiguous, 4 mm long, reaching above the middle of the segments. *Style* 32–40 mm; *stigmatic branches* 1.5–2 mm long, overtopping the anthers. *Capsules* subrotund-trigonus or shortly obovoid-trigonus, 6–10 mm long; *seeds* subglobose, dark brown, 2 mm diam., minutely reticulate-foveolate.

Flowering period: late August to September.

Distribution: southern Richtersveld, Namaqualand (Fig. 22).

CAPE—2817 (Violsdrif): Brakfontein (-CC), Marloth 12296 (BOL, PRE).

This new species, found only once in 1925, is very closely related to *T. delpierrei*, being similar to the latter except for its longer flowers, longer perianth tube and style, and perhaps different flower colouring. The flower colour of the dried specimens have been noted on the herbarium sheet in PRE as “apparently pink” and in BOL as “flowers appear purple to pink, pale”. The note in BOL is not in Marloth’s handwriting. There is a possibility that the flowers may be cream or pale yellow, like those of *T. delpierrei* which sometimes tend to become flushed with purplish-pink on drying out. Whether the bracts are greenish in their lower half as in *T. delpierrei*, could not be determined.

As no intermediates between the two taxa have as yet been found, they are here treated as separate species.

27. *Tritonia karooica* De Vos, sp. nov.

Fig. 28.

Plantae 100–200(–230) mm longae. *Cormus* ovoideus, basi subcomplanatus, 10–25 mm diam., fibris tunicae validis, superne elongato-reticulatis, basin versus subparallelis. *Scapus* 40–150 mm longus, interdum 1-ramosus, circa basin fibris veteribus. *Folia* 6–10, disticha, flabellata, lanceolata-falcata, reflexa, percurvata vel expansa, $40\text{--}100(-150) \times 3\text{--}7$ mm. *Spica* flexuosa, floribus 2–6 vel raro pluribus. *Bracteae* membranaceae, (12–)15–20 mm

longae; *bractea exterior* acuta v. 3-dentata, apicem versus subtiliter sphacellata, porphyreo-nervi; *interior* bidentata, binervis. *Flores* leviter zygomorphi, infundibulares, demum segmentis perianthii reflexis, 40–60 mm longi, plerumque ochracei, armeniaco suffusi, fusco venosi, fragrantis. *Tubus perianthii* 25–32 mm longus, infundibularis; *segmenta* obovato-spathulata, obtusa v. subobtusa, 12–18 mm longa, longitudine subaequalia, segmenta postica 7–12 mm lata, mediano latissimo, segmenta antica 6–7 mm lata, in quoque callo luteo vix 1 mm alto. *Stamina* segmentum posticum versus curvata; *filamenta* 15–22 mm longa; *antherae* curvatae, fere dimidium segmentorum attingentes. *Stylus* 28–35 mm longus; *rami stigmatici* antheras attingentes v. parum superantes. *Capsulae* breviter ellipsoideo-trigonae v. obovoideo-trigonae, seminibus leviter protuberantibus, globosis, brunneis, ca. 2 mm diam., subtiliter reticulato-foveatis.

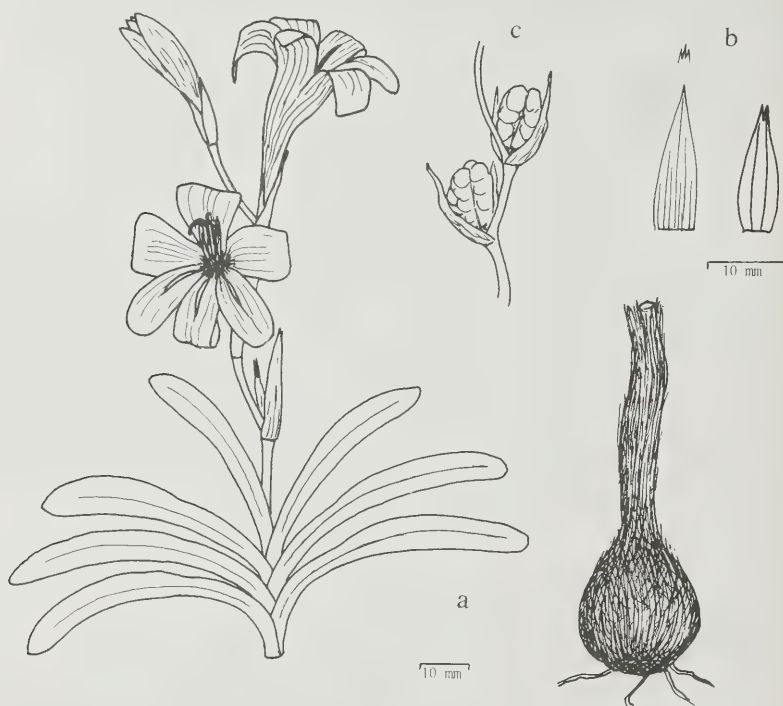


FIG. 28

Tritonia karooica (De Vos 2259, 2458): a, plant; b, outer (left) and inner (right) bract; c, capsules.

Type: Cape, Murraysburg, *Tyson 311* (BOL, holo-; NH, SAM, BM, K).

Plants 100–200(–230) mm long. *Corm* ovoid, somewhat flattened at the base, 10–25 mm diam.; tunic fibres strong, elongated-reticulate above, at the base subparallel and often somewhat plate-like. *Scape* 40–150 mm long, sometimes with one branch, with a short collar of old fibres around its base. *Leaves* 6–10, lanceolate-falcate, acute or obtuse, in a dense, fan-shaped distichous basal group, usually strongly curved, reflexed or spreading, 40–100(–150) × 3–7 mm, with a prominent middle vein. *Spike* distichous, flexuose, with 2–6 or rarely more flowers. *Bracts* membranous, papery, (12–)15–20 mm long; *outer* acute or 3-toothed with the middle tooth longest, finely sphacelate towards the tip, with reddish-brown veins; *inner* bidentate, 2-veined. *Flowers* slightly zygomorphic, funnel-shaped, ultimately with reflexed perianth segments, 40–60 mm long, usually dull yellow or brownish-yellow or sometimes cream, orange or salmon, flushed with orange or pink outside, conspicuously dark-veined, fragrant in the evening. *Perianth tube* 25–32 mm long, funnel-shaped, narrow in the lower half, widened gradually in the upper half to ca. 8–10 mm diam; *segments* obovate-spathulate, obtuse or subobtuse, 12–18 mm long, subequal in length, upper segments 7–12 mm wide, the median one widest, anticus segments 6–7 mm wide, each with a yellow callus 6–10 mm long and hardly more than 1 mm high. *Stamens* curved towards the posticus segment; *filaments* 15–22 mm; *anthers* 6–7 mm long curved, reaching about halfway up the perianth segments. *Style* 28–35 mm; *stigmatic branches* 4–5 mm long, reaching or slightly overtopping the anthers. *Capsules* shortly ellipsoid-trigonus or obovoid-trigonus, with bulging seeds, 8–12 mm long; *seeds* globose, brown, finely reticulate-foveate, ca. 2 mm diam.

Flowering period: August to September, sometimes to October.

Distribution: widespread throughout the western and north western parts of the Great Karoo, mostly above the Nuweveld escarpment (Fig. 22).

CAPE—2918 (Gamoep): Areb (-AC), *Barker 8364* (NBG, PRE), *Lewis SAM 65405* (PRE); About 30 mls NE of Springbok (-CB), *Lewis 3501* (SAM); 20 mls NE of Springbok (-CA), *Barker 6670* (BOL, NBG).

—2919 (Pofadder): 5 mls NE of Pofadder (-AB), *Lewis SAM 65406* (PRE); Between Bladgrond and Pofadder (-BA), *Barker 8340* (NBG, STE).

—2922 (Prieska): Prieska (-DA), *Bryant 1140* (BOL, PRE, K), *Pole-Evans 18803* (PRE).

—2923 (Douglas): Strydenburg (-DC), *Schweickerdt 2604* (PRE); South of Strydenburg, *Taylor 855* (BOL).

—3018 (Kamiesberg): Dabidas farm, ca. 5 km SE of Aalwynsfontein (-BC), *Thompson 2853* (PRE).

—3021 (VanWyksvlei): Jasperskop, ca. 20 mls N of VanWyksvlei (-BB), *Stayne s.n.*, 21/8/63 (NBG, STE).

—3022 (Carnarvon): Carnarvon (-CC), *Curry BOL 13682*.

- 3118 (VanRhynsdorp): Nuwefontein, fired at Whitehill, *Archer* 683 (BOL).
 - 3119 (Calvinia): Calvinia (-BD), *Hanekom* 2114 (PRE), *Schmidt* 335 (PRE).
 - 3120 (Williston): 20 mls E of Calvinia (-AC), *Barker* 9520 (NBG, STE); 16 mls W of Williston (-BC), *Acocks* 14695 (PRE); Near Williston (-BD), *Schlieben* 9159 (PRE); Rietfontein, *Hanekom* 2114 (MO); Between Middelpoos and Calvinia (-CC), *Goldblatt* 566 (BOL).
 - 3121 (Fraserburg): Between Fraserburg and Carnarvon (-BD/-DA), *Hafström & Acocks* 280 (PRE, S); Fraserburg–Williston road (-BD), *De Vos* 2259 (STE).
 - 3123 (Victoria West): Murraysburg (-DD), *Tyson* 311 (BOL, SAM, BM, K, NH).
 - 3124 (Hanover): Hanover (-AB), *Burger s.n.*, Sept. 1907 (GRA).
 - 3221 (Merweville): Layton, Leeugamka–Fraserburg road (-BB), *Shearing* 101 (PRE); *Shearing* sub *De Vos* 2458 (STE).
- Without precise locality: Bushmanland, *Bolus* 31779. (BOL).

This very distinct species has been mistakenly identified in South African herbaria as *T. flava*. An examination of the holotype of the latter in BM showed that the present species is, except for the yellow colour of the flowers, totally different. It differs from *T. flava* in its narrower, usually recurved, distichous leaves spread fan-wise, and in its perianth with dark veins, long perianth tube, and long, but low, calli on the lower segments.

T. karooica is readily distinguished by its usually strongly reflexed leaves and large funnel-shaped, usually brownish-yellow flowers often flushed with orange or pink outside, with a perianth tube about twice the length of the segments, which have five or more dark longitudinal veins, and later become strongly reflexed; the calli on the anticus perianth segments are long but hardly more than 1 mm in height.

28. *Tritonia florentiae* (Marl.) Goldbl. in *Bothalia* **11**: 281 (1974).

Gladiolus florentiae Marl. in *Trans. Roy. Soc. S. Afr.* **2**: 241 (1912).

Type: Cape, near Groot Tygerberg, Prince Albert district, *Marloth* 4452 (PRE, holo-; BOL).

Montbretiopsis florentiae (Marl.) L. Bol. in *S. Afr. Gard.* **19**: 215 (1929); Phillips, *Gen. S. Afr. Flow. Pl.* ed. 2, **219** (1951).

Icones: *Marloth*, *Fl. S. Afr.* **4**: t. 47a (1915); this work **Fig. 29**.

Plants 70–120 mm long. *Corm* ovoid to pear-shaped, 10–15 mm diam.; tunic fibres very fine, elongated-reticulate. *Scape* very short, hidden by leaf sheaths and leaf remains which form a collar ca. 30 mm long around the base. *Leaves* 4–8, basal, distichous, scimitar-shaped, recurved, acute to sub-acute, 50–70 × 3–6 mm, with a slender middle vein. *Inflorescence* with 2–3(–4) flowers, each terminal on its own peduncle of ca. 10 mm and subtended by a pair of bracts. *Bracts* membranous, papery, very thin, soon crumpled, 12–18 mm long, pale straw-coloured, finely stippled or striate with short brown lines, hidden by the leaf sheaths; *outer* greenish in the low-



FIG. 29

Tritonia florentiae (De Vos 2282): a, plant and front view of flower; b, flower half in a median cut.

er part, acute, soon lacerated at the tip; *inner* bidentate. *Flowers* zygomorphic, (32-)44-50 mm long, bright yellow (RHS 12A, B), reddish in the throat and with an arrow-shaped red mark on the lower segments. *Perianth tube* (15-)18-24 mm long, almost straight, tubular in the lower 8-10 mm, gradually widened and funnel-shaped upwards; *segments* unequal, (15-)20-25 mm long, obtuse to subacute, median posticous segment largest, obovate, 13-15(-18) mm wide, slightly concave, sometimes emarginate; lateral posticous 8-10 mm wide, oblanceolate, anticous segments 5-7(-9) mm wide, oblanceolate, each with a large, triangular, yellow callus with a crisped upper margin. *Stamens* curved towards the posticous segment, *filaments* 10-13 mm; *anthers* 5-6 mm long, contiguous, facing downwards, reaching above the middle of the posticous segment, yellow or purple with mauve or

whitish pollen. *Style* 25–30(–33) mm; *stigmatic branches* 3 mm long, often overtopping the anthers. *Capsules* inflated, ovoid to shortly ellipsoid, 15–20 mm long, each on its own stalk; *seeds* dark brown, round or angled, smooth, ca. 2 mm diam.

Flowering period: May to July.

Distribution: western and southern parts of the Great Karoo from Calvinia to Beaufort West and Prince Albert (Fig. 21).

CAPE—3119 (Calvinia): Stompiesfontein, *Compton 11151* (NBG); South of Bloukranspas on road to Ceres (-DC), *De Vos 2343* (STE).

—3219 (Wuppertal): Ceres district, 10 mls NE of Tulpfontein (-DB), *Acocks 14456* (PRE): Ca. 160 kms S of turnoff to Ceres from Calvinia (-DD), *Goldblatt 3921* (MO).

—3222 (Beaufort West): 14,5 mls S Beaufort West (-DA), *Acocks 20441* (PRE).

—3222 (Oudtshoorn): Prince Albert, N foot of Tierberg (-AB), *De Vos 2282* (STE); Tygerberg near Prince Albert, *Marloth 4452* (BOL, PRE).

T. florentiae comprises small plants readily distinguished by their short stem, distichous, recurved leaves, pale papery bracts hidden by the leaf bases, and bright yellow flowers with the three lower perianth lobes showing an arrow-shaped red mark above a large triangular callus which has a crisped upper edge.

The species has the habit, corm, and flower typical of *Tritonia* section *Montbretia*, but differs from all other *Tritonia* species in its inflorescence. On account of this L. Bolus placed it in a genus of its own, *Monbretiopsis*. The plant bears two to three, or rarely four, flowers each within its two bracts, terminal on a short peduncle which is produced in the axil of an upper foliage leaf. This inflorescence can be interpreted as a very reduced branched spike, each branch with a single flower. This character is analogous with that discussed by Goldblatt (1972) in *Anomatheca*, where one species, *A. fistulosa* has a branched inflorescence, each branch with a single terminal flower. The inflorescence of the present species differs from the latter in its much shorter branches which are hidden by the leaf sheaths.

SPECIES INSUFFICIENTLY KNOWN

Tritonia flava (Ait.) Ker-Gawl. in Kon. & Sims, *Ann. Bot.* 1: 228 (1805); Ait. *Hort. Kew.* ed. 2, 1: 92 (1810); non Ker-Gawl. 1823, nec Bak. 1892, 1896.

Gladiolus flavus Ait. *Hort. Kew.* 1: 65 (1789). Type: *Hort. Kew.* 1781 (BM, holo-).

Known only from its type in BM which is a very poor specimen comprising a scape with a single open flower and a few buds, a lateral branch with buds, two cauline leaves and basal leaf, and another loose basal leaf.

Scape ca. 150 mm long, flexuose with one branch. *Basal leaves* 130–140 × 7–10 mm, lanceolate, acuminate, with a strong middle vein; cauline leaves smaller. *Spike* lax, with few flowers. *Outer bract* pale brown, 15–25 mm long, narrowly lanceolate, acuminate, striate, with a stronger median vein and sphacelate papery margins; *inner* 15 mm long, bifid with 2 long acuminate points. *Flowers* 40 mm long, yellow (e descr.), suberect. *Perianth tube* ca. 25 mm long, funnel-shaped; *segments* ca. 15 × 4–5 mm, the three lower segments with an unguiform perpendicular callus (e descr.). *Anthers* 5 mm long. *Style* ca. 25 mm.

Distribution unknown.

It is not the same as *T. flava* Ker-Gawl. in Bot. Reg. 7 t. 747 (1823) (see under *T. securigera*), nor is it the species designated as *T. flava* in South African herbaria (see *T. karooica*).

T. fulva Dehnh. Cat. Horti Camald. ed. 2, 24 (1832) is, e descr., a *Tritonia* species, sect. *Montbretia*. Type not found.

T. magniflora Dehnh. ibid. is, e descr., perhaps *T. squalida* (Ait.) Ker-Gawl. Type not found.

T. pulchella Dehnh. ibid. is, e descr., perhaps *T. squalida* (Ait.) Ker-Gawl. Type not found.

T. tripunctata Dehnh. ibid. is, e descr., a *Tritonia* species, section *Montbretia*. Type not found.

T. undulata (N.L. Burm.) Bak. in J. Linn. Soc. 16: 163 (1877) partly as to name, excl. syn., & Handb. Irid. 191 (1892), & Fl. Cap. 6: 121 (1896) as to name but not as to plant described, and excl. all syn. except *I. undulata*; Foster in Contr. Gray Herb. N.S. 114: 46 (1936) as to name but not as to plant; non Marloth (1915).

Ixia undulata N.L. Burm. Prodr. Fl. Cap. 1 (1768); non Salisb. (1796). Type: Africa australis, Caput bonae Spei, Herb. Burman s.n. (G, holo-).

Tritonixia undulata (Bak.) Klatt in Abh. naturf. Ges. Halle 15: 357 (1882).

Tritonia undulata (N.L. Burm.) N.E.Br. in Kew Bull. 1929: 137 (1929).

Scape ca. 120 mm long, slender, slightly flexuose. *Leaves* 3, ca. 60–100 × 4–6 mm, acuminate, with crisped, finely ciliate, undulate margins and a strong middle vein. *Spike* lax, few-flowered. *Bracts* membranous, brown, 5 mm long; *outer* ovate, subobtuse or shortly lacerate; *inner* bidentate. *Flowers* 20–24 mm long, funnel-shaped, yellowish (fide Burman). *Perianth*

tube 10–12 mm long, funnel-shaped; segments subequal, oblong-lanceolate (linear, fide Burman), obtuse, 10–11 × 3 mm, probably without calli. Anthers 2 mm long, curved, fairly stout for their length, reaching halfway up the perianth segments. Style ca. 16 mm long, reaching the anther tips.

Distribution: Cape of Good Hope, without precise locality.

Linnaeus the younger (1781) combined two species under *Ixia crispera* when he cited *I. undulata* Burm. as synonym. His description, however, refers to *I. crispera* only. Ker-Gawler [Curtis's bot. Mag. t. 599 (1802)] also cited *I. undulata* as a synonym of *I. crispera* L.f. As Burman's epithet was the earlier one, Baker (1877), on transferring the taxon to *Tritonia*, named it *T. undulata* (Burm.f.) and cited Linnaeus's species as a synonym. The description, provided in 1892 by Baker, refers, like Linnaeus's description, to *I. crispera* only.

The error was discovered by N. E. Brown (1929) when he examined the Iridaceae of Burman's *Prodromus*. He thereupon described Burman's plant as *T. undulata* (Burm.f.) N.E.Br. and gave *I. crispera* L.f. a new name, *T. thunbergii*, since the name *T. crispera* had already been used for another species of *Tritonia*. See *T. thunbergii* under SPECIES EXCLUDED.

Foster (1936) realised that difficulties were involved in the acceptance of *T. undulata* (Burm.) N.E.Br. and indicated Burman's species only as *T. undulata* (Burm.f.) Bak. "as to name but not as to plant".

Burman's species is known only from its specimens in the Burman herbarium in Geneva. Superficially the plant looks like a species of *Tritonia*. Its anthers are, however, shorter and stouter than in any species of *Tritonia*, and it must perhaps be transferred to another genus, e.g. *Ixia*.

SECTIONS AND SUBGENERA EXCLUDED FROM *TRITONIA*

Section *Crococoma* (Planch.) Bak. in J. Linn. Soc. **16**: 163 (1877) (orthographic error) is *Crococsmia* Planch.

Section *Dichone* Salisb. ex. Bak. in J. Linn. Soc. **16**: 163 (1877) and subgenus *Dichone* Salisb. ex Bak. Handb. Irid. 190 (1892) are *Ixia* subgenus *Dichone* Lewis in J. S. Afr. Bot. **28**: 159 (1962).

Subgenus *Stenobasis* Bak. Handb. Irid. 196 (1892) is partly *Tritoniopsis* L. Bol. and partly *Zygotritonia* Mildbr.

Section *Stenobasis* (Bak.) Diels in Pfl. Fam. ed. 2, **15a**: 490 (1930) is *Tritoniopsis* L. Bol.

SPECIES EXCLUDED

Montbretia abyssinica Hochst. in Flora **24**: 1 (1841) [*Tritonia abyssinica* (Hochst.) Walpers, Ann. Bot. Syst. **3**: 613 (1852-53)]. Type: *Schimper Pl. Abyss.* 329: The isotype in G is a species of *Geissorhiza* (*G. ?abyssinica* R. Br. ex. Walp. p. 614) and not a *Lapeyrousia* as indicated by Baker (1877).

T. acroloba Harms in Bot. Jb. **30**: 278 (1902) is *Radinosiphon leptostachys* (Bak.) N.E.Br. in Trans. Roy. Soc. S. Afr. **20**: 263 (1932).

Montbretia aequimaculata Heynh. Nom. Bot. Hort. **2**: 417 (1846) nom. nud. Identity not known.

T. anigozanthiflora Sweet, Hort. Brit. ed. 1, **398** (1827) nom. nud. (*Montbretia anigozanthaeiflora* (Sweet) Heynh. *ibid.*, nom. nud.). Identity not known.

T. aurea Pappe ex Hook. in Curtis's bot. Mag. **73** t. 4335 (1847) is *Crocasmia aurea* (Pappe ex Hook.) Planch. Fl. Serres Ser. 1, **7**: 161 (1851-52).

T. bongensis Pax in Bot. Jb. **15**: 153 (1893) is *Zygotritonia bongensis* (Pax) Mildbr. in Bot. Jb. **58**: 230 (1923).

T. carnea Hort., Pasq. Cat. Orto Bot. Nap. 104 (1867), nom. nud. Identity not known.

T. cinnabarina Pax in Bot. Jb. **15**: 152 (1893) is *Crocasmia cinnabarina* (Pax) De Vos, comb. nov. Type: Angola, Catala Canginga, *Teucs* in *Exped. A. v. Mechow* 573 (B, holo-).

T. concolor Sweet, Hort. Brit. ed. 1, **398**: (1827) [*Montbretia concolor* (Sweet) Voigt, Hort. Suburb. Calc. 611 (1845)] is *Ixia paniculata* Delaroche, Descr. Pl. aliq. nov. 26, t. 1 (1766), fide Lewis (1962).

T. cooperi Bak. Handb. Irid. 192 (1892) nom. illeg., non Klatt (1882) is *Watsonia cooperi* (Bak.) L. Bol. in J. Bot. Lond. **67**: 135 (1929). See also Lewis (1941).

T. crocosmiflora Nich. Dict. Gard. **4**: 94 (1888), a garden hybrid, is *Crocasmia crocosmiflora* (Nich.) N.E.Br. in Trans. Roy. Soc. S. Afr. **20**: 264 (1932).

T. fucata Lindl. in Bot. Reg. **24** t. 35 (1838) [*Montbretia fucata* (Lindl.)

Voigt, Hort. Suburb. Calc. 611 (1845)] is *Chasmanthe fucata* (Lindl.) N.E.Br. in Trans. Roy. Soc. S. Afr. **20**: 274 (1932).

Montbretia gallabatensis Schweinf. ex. Bak. in J. Linn. Soc. **16**: 155 (1877) is *Lapeirousia abyssinica* (Hochst.) Bak. *ibid.*

T. graminifolia Bak. Handb. Irid. 195 (1892) is *Anomatheca grandiflora* Bak. in J. Bot. Lond. **14**: 337 (1876), according to W. Marais' determination of the type in K.

T. latifolia (Delar.) N.E.Br. in Kew Bull. **1929**: 135 (1929) is *Ixia latifolia* Delar. Descr. pl. aliq. nov. 22 (1766), *fide* Lewis (1962).

T. longiflora (Ker) Ker-Gawl. in Kon. & Sims, Ann. Bot. **1**: 228 (1805), non N.E.Br. (1928) is *Ixia paniculata* Delaroche Descr. pl. aliq. nov. 26 (1766).

T. macowanii Hort., cf. Gard. Chron. **2**: 374, 407 (1877), an orthographic error for *Tritoma macowanii*, is *Kniphofia triangularis* Kunth, Enum. Pl. **4**: 551 (1843). See Codd in Bothalia **9**: 469.

T. masonorum L. Bol. in Ann. Bol. Herb. **4**: 43 (1926) is *Crocasmia masonorum* (L. Bol.) N.E.Br. in Trans. Roy. Soc. S. Afr. **20**: 264 (1932).

T. mathewsiana L. Bol. in Ann. Bol. Herb. **3**: 76 (1923) is *Crocasmia mathewsiana* (L. Bol.) Goldbl. in Jl S. Afr. Bot. **37**: 423 (1971).

T. mensensis Schweinf. in Bull. Herb. Boiss. **2**, App. ii: 86 (1894) is a species of *Gladiolus*. Type: Eritrea: Gheleb in prov. Mensa, Schweinfurth 1188 (K).

T. media cf. Pritz. Ic. Ind. **1**: 1124, an orthographic error for *Tritoma media* Ker-Gawl. which is *Kniphofia sarmentosa* (Andr.) Kunth, Enum. Pl. **4**: 552 (1843). See Codd in Bothalia **9**: 453.

T. nervosa (Bak.) Klatt in Abh. naturf. Ges. Halle **15**: 358 (1882) is *Tritoniopsis nervosa* (Bak.) Lewis in Jl S. Afr. Bot. **25**: 351 (1959).

T. nervosa Bak. in Bull. Herb. Boiss. Ser. 2, **1**: 864 (1901) nom. illeg., non Klatt (1882), is e. descr. a *Tritoniopsis* sp., cf. *T. ramosa* Eckl. ex Klatt var. *unguiculata* (Bak.) Lewis in Jl S. Afr. Bot. **25**: 329 (1959).

T. odorata Lodd. Bot. Cab. **19** t. 1820 (1832), nom. nud. is *Freesia corymbosa* (Burm. f.) N.E.Br. in Kew Bull. **1929**: 132 (1929).

T. paniculata (Delaroche) Klatt in Abh. naturf. Ges. Halle **15**: 358 (1882) is *Ixia paniculata* Delaroche. Descr. pl. aliq. nov. 26 (1766), fide Lewis (1962).

T. pauciflora (Bak.) Klatt in Abh. naturf. Ges. Halle **15**: 358 (1882) [*Montbretia pauciflora* Bak. in J. Bot. Lond. **14**: 336 (1876)] is *Gladiolus floribundus* Jacq. Coll **4**: 162 (1792), f. Lewis e.a. (1972).

T. pauciflora Bak. Handb. Irid. 193 (1892), non (Bak.) Klatt (1882), is *Hesperantha pauciflora* (Bak.) Lewis in Flow. Pl. S. Afr. **18** t. 682 (1938).

T. pottsii (Bak.) Bak. in Curtis's bot. Mag. 109 t. 6722 (1883) is *Crocsmia pottsii* (Bak.) N.E.Br. in Trans. Roy. Soc. S. Afr. **20**: 264 (1932).

T. quinquenervata Foster in Contr. Gray Herb. **114**: 46 (1936) is *Watsonia cooperi* (Bak.) L. Bol. in J. Bot. Lond. **67**: 135 (1929). See also Lewis (1941).

T. reflexa Klatt ined. in herb. is *Ixia scillaris* L.

T. refracta (Jacq.) Ker-Gawl. in Kon. & Sims. Ann. Bot. **1**: 228 (1805) is *Freesia refracta* (Jacq.) Klatt in Linnaea **34**: 673 (1865–66), f. Goldblatt (1982).

T. riparia Cordemoy, Fl. l'Ile Réunion 161 (1895) is possibly a species of *Dietes*. The isotype in P has fruits only.

T. rocheana Sweet, Hort. Brit. 398 (1827) [*M. rocheana* Heynh. Nom. Bot. Hort. **2**: 418 (1846)] is *Ixia bellendenii* Foster in Contr. Gray Herb. **114**: 47 (1936).

T. rochensis Ker-Gawl. in Curtis's bot. Mag. **37** t. 1503 (1812) is *Ixia bellendenii* Foster ibid. cf. Lewis (1962).

T. schimperi Aschers. & Klatt in Linnaea **34**: 697 (1865–66) is *Lapeirousia schimperi* (Aschers. & Klatt) M. Redh. in Kew Bull. **34**: 307. Type: *Schimper* Pl. Abyss. 2304 (G, iso-).

T. schlechteri Bak. in Bull. Herb. Boiss. Ser. 2. **4**: 1005 (1904) is a

species of *Ixia*, cf. *I. orientalis* L. Bol. Type: Cape, Swarteberg, *Schlechter* 5609 (Z, holo-).

T. scillaris (L.) Bak. in J. Linn. Soc. **16**: 163 (1877) is *Ixia scillaris* L. Sp. Pl. ed. 2, **1**: 52 (1762), fide Lewis (1962).

T. striata (Jacq.) Ker-Gawl. in Kon. & Sims, Ann. Bot. **1**: 228 (1805), non Klatt 1895, [*Montbretia striata* (Jacq.) Voigt, Hort. Suburb. Calc. 611 (1845)] is *Babiana striata* (Jacq.) Lewis in Jl S. Afr. Bot. **7**: 55 (1941).

T. templemannii Bak. Handb. Irid. 193 (1892) is *Pillansia templemannii* (Bak.) L. Bol. in Ann. Bol. Herb. **1**: 20 (1915).

T. tenuiflora (Vahl) Ker-Gawl. in Curtis's bot. Mag. **31** sub t. 1275 (1810) [*Montbretia tenuiflora* (Ker-Gawl.) Voigt, Hort. suburb. Calc. 611 (1845)] is *Ixia paniculata* Delaroche, Descr. pl. aliq. nov. 26, t. 1 (1766), fide G. J. Lewis (1962).

T. teretifolia Bak. Handb. Irid. 194 (1892) is *Gladiolus permeabilis* Delar. Descr. pl. aliq. nov. 27, t. 2 (1766) ssp. *wilsonii* (Bak.) Lewis e.a. (1972).

T. thunbergii N.E.Br. in Kew Bull. **1929**: 137 (1929) is *Ixia erubescens* Goldbl. in Jl S. Afr. Bot. **37**: 233 (1971).

T. tigrina Pax in Bot. Jb. **15**: 152 (1893) is possibly a species of *Schizostylis*. From Angola. Type in B.

T. trinervata Bak. Handb. Irid. 191 (1892) is *Ixia trinervata* (Bak.) Lewis in Jl S. Afr. Bot. **28**: 169 (1962).

T. tristis Dehnh. Cat. horti Camald. ed. 2, 24 (1832) is, e descr., not *Tritonia*. Type not found.

T. undulata sensu Bak. in J. Linn. Soc. **16**: 163 (1877) in part, non N.E.Br., is *Ixia erubescens* Goldbl. in Jl S. Afr. Bot. **37**: 233 (1971).

T. unguiculata Bak. Handb. Irid. 196 (1892) is *Tritoniopsis ramosa* Eckl. ex Klatt var. *unguiculata* (Bak.) Lewis in Jl S. Afr. Bot. **25**: 329 (1959).

T. ventricosa Pasq. Cat. Orto Bot. Nap. 104 (1867) nom. nud. Identity not known.

T. ventricosa Bak. Handb. Irid. 193 (1892) is *Gladiolus brevitubus* Lewis in JI S. Afr. Bot. Suppl. 10: 171 (1972), a nom. nov. for *T. ventricosa* Bak.

T. viridis (Ait.) Ker-Gawl. in Kon. & Sims, Ann. Bot. 1: 231 (1805) [*Montbretia viridis* (Ker-Gawl.). Voigt, Hort. suburb. Calc. 610 (1845)] is *Anomatheca viridis* (Ait.) Goldbl. in JI S. Afr. Bot. 37: 443 (1971).

T. watsonioides Bak. Handb. Irid. 195 (1892) is *Watsonia watsonioides* (Bak.) Oberm. in Bothalia 8: 115 (1962).

T. wilsonii Bak. in Gard. Chron. 26: 38 (1886) is *Gladiolus permeabilis* Delar. ssp. *wilsonii* (Bak.) Lewis in JI S. Afr. Bot. Suppl. 10: 133 (1972).

T. xanthospila Ker-Gawl. ex Spreng. Syst. Veg. 1: 154 (1825) [*Montbretia xanthospila* Heynh. Nom. Bot. Hort 2: 418 (1846)] is *Freesia xanthospila* Klatt in Linnaea 34: 673 (1865–66), a species based on cultivated material, f. Goldblatt in JI S. Afr. Bot. 48: 89 (1982).

ADDENDUM: NOTE ON A SPECIES ALREADY REVISED IN PART 1

***Tritonia tugwelliae* L. Bol.**

The following more detailed description is given of the flowers from a collection, *De Vos 2463*, found in 1981, east-north-east of Laingsburg along the N1 national road (Ladismith 3321-AA), that flowered in August 1982.

Perianth tube with red lines inside; *segments* (except the median posticous) with red lines in the throat; median anticous also with a yellow zone in the throat above which a small red spot occurs. *Stamens* and *style* curved against the posticous segment; *anthers* at first violet, pollen violet or mauve. *Stigmas* small, terminal.

The newly opened flowers have the median posticous perianth segment porrect and the other segments spreading or recurved. In older flowers, the three anticous segments fold upwards over one another, partially closing the throat of the flower; the three posticous segments are strongly reflexed, also folding over one another at the posterior side of the flower. Fig. 30.

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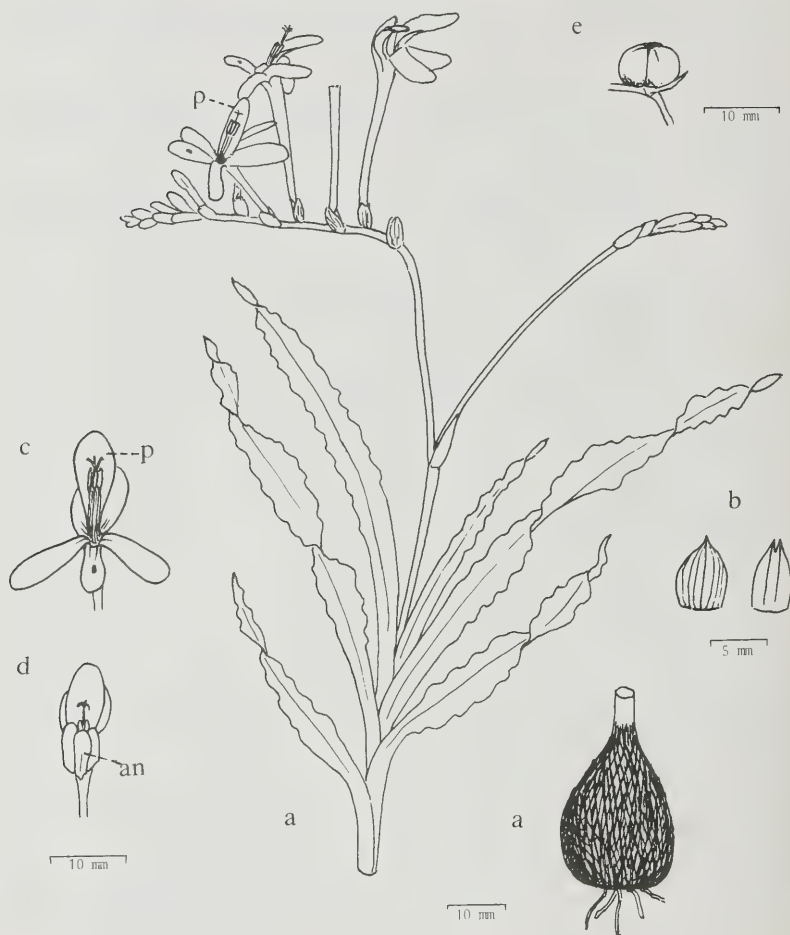


FIG. 30

Tritonia tugwelliae (De Vos 2463): a, plant; b, outer (left) and inner (right) bract; c, newly opened flower; d, older flower; e, capsule; an, median anticous perianth segment; p, posticous segment.

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